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THE ELECTRICAL BATH.

A Paper read before the Albany (N. Y.) County Medical Society,

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The administration of electricity through water is almost synchronous with the discovery of that agent, and the use of water has ever since almost always accompanied its application in one way or another. Its use through the medium of the thermal bath, in the manner which I am about to describe, is, I think, a recent innovation, and one which I am sincerely convinced possesses very great remedial virtues, and which is destined to occupy a high position in the esteem of the profession.

This is said after a four years' experience in its almost constant employment in a great variety of diseases, principally chronic, and I think it fully deserves to rank, in its special line of application, with the Turkish and Russian baths in their special lines, as of equal if not superior merit; while as a simple tonic measure I know of nothing that equals it.

In looking over the standard writers on the subject of electricity very little mention is made of its use in the bath. Gerratt, Althaus, Beard and Rockwell, and others, mention the electro-chemical bath, by means of which it is alleged that various mineral substances, such as lead, mercury, silver, etc., have been extracted from the human body. As I have had no experience with this process, first presented to the profession in 1855 by M. Poey, through a paper read before the French Academy, and as its claims are, I believe, without scientific support, I have nothing to say concerning it.

There is little or no mention made of electricity, administered by means of a bath, in any of the standard works upon materia medica or therapeutics, and it is only in such writers as Tibbits, Beard, and Rockwell and Schweig that even a passing reference occurs. The latter, indeed, enthusiastically urges its merits at length, but the first two concede the possibility of its value in a reluctant manner and with but crude explanations of its thorough and rational application.

In using the term "electro-thermal bath," I employ it in a very restricted sense. It is intended to refer only to the use of the *faradic* current in the warm or hot bath, applied principally through the medium of the water, and on the principle of general faradization, which has attracted so much attention of late among well recognized specialists, from its satisfactory results. The galvanic current, which I have also used in the bath, has not been found so useful as when applied locally outside the tub. As I have used both the faradic and galvanic currents, both in and out of the bath, and side by side, for several years, and have seen their effects in at least five thousand applications, I may at least claim to have studied various sides of the subject, and to be not especially prejudiced in favor of the method of which I am speaking. Indeed, I have made more use of the galvanic current out of than of the faradic in the water.

As I am *not* an electric specialist, I hope to speak without a specialist's unintentional bias or

prejudice. Neither do I wish to be understood as regarding electricity in the least—in any of its forms of application—as a cure-all or panacea. In speaking of my special topic I only urge it as an improved method of administering this valuable agent in certain cases and for certain maladies.

A brief description of the bath and its appliances is necessary for a correct understanding of its therapeutical uses. Its requisites are very few and simple. A battery, connections, electrodes, a tub and water, are all that is needed. Any non-conducting material, such as wood, porcelain, soapstone, vulcanized rubber or glass, may be used for the tub. It may be of the ordinary size and shape, but is preferably somewhat deeper and without the inclined plane at the head, which would interfere with the movement of the electrodes. A metal rod is placed in a deep groove running the entire length of the tub on either side, and within a couple of inches of the top. To each of these rods is appended a single electrode, which may be slid along on the rod from one end of the tub to the other, its connection with the battery being constantly maintained by means of the rod. Both rods are conneeted with the battery, one with the negative the other with the positive pole, but so arranged that by the aid of a commutator the current and the poles may be reversed at pleasure.

The electrodes may be either of carbon or metal, and should extend at least eight or ten inches below the surface of the water. In addition to these a single ordinary movable electrode is provided. which may be applied to the person at special points, as desired. This should then represent one pole and the tub electrodes the other. All that remains is to provide any good induction battery of large quantity, and connect it with the tub as described.

The administration of the bath is as simple as the apparatus. It may be passed in descending current from one shoulder to the opposite foot, then from the opposite shoulder to the other foot. It may be passed through the liver, as a stimulus to that organ, through the bowels, for constipation, assisted in both instances by the movable electrode if desired, or the use of a rectal electrode in the latter case, in place of the sponge. It may be passed through the hips and thighs, for sciatica, or the legs or arms, for atrophied muscles, paralysis, rheumatism, gout, etc., or applied locally, for neuralgic pains, anæsthesia, disturbances of sensation, etc., at almost any point on the person. For general tonic purposes excellent effects are obtained by passing the movable electrode over the spine, the two attached to the tub being placed by the feet and the current being so adjusted that they represent the negative and the movable electrode the positive poles of the battery, respectively.

The various special applications, or modifications of those suggested, are, of course, endless, and would readily suggest themselves to the operator as indicated by the individual needs of each case. The duration of the bath is usually about fifteen minutes, but may vary five minutes either way, and in some cases has to be limited to a still shorter time. The strength of the current has to be determined, as in most cases, by the sensibility of the patient, and the length of the vibrations by the judgment of the electrician.

Concerning the merits or superior advantages of this method of applying the faradic current considerable may be said.

It has been my experience, in using it in this manner in a large number of cases, that it has unquestionable advantages, in certain lines of maladies, over either the galvanic or faradic currents out of the water, and both methods have, as I have said, been used side by side. There have been seen very marked and satisfactory recoveries or improvements resulting from its employment, more, in my judgment, than could have occurred by the older plan of administration.

A number of years ago Drs. Beard and Rockwell called the attention of the profession to the use of what they called "general faradization," and insisted so strongly upon its merits that it was freely tried on both sides of the Atlantic. Many leading physicians endorsed its use, and prescribed it with excellent effects. "General faradization," according to them, consisted in simply faradizing the system generally, in detail; the use of the hand as an electrode being strongly advised. There can be no doubt that most excellent results have been obtained in this manner, but that the bath, more thoroughly and effectually, more agreeably and generally, and that with less fatigue and inconvenience to both patient and operator, accomplishes the same ends, seems to my mind a matter of no doubt. If the object of general faradization is to reach all parts of the body uniformly and completely, the bath accomplishes that object more effectually than any other plan. If it be to produce localized effects on any portion of the body, that also can be as efficiently and more gently accomplished. If the use of the hand as an electrode be urged, the water offers an agent as adaptive, as soothing, and more conductive, and which, at the same time, greatly increases the conductivity of the parts.

A not unimportant factor in administering electricity is the resistance offered by the skin. It is often like sending the current through a deal board, so dry, and hard, and cold, and consequently non-conductive, is it. Poore, the English electrician, calculates that the resistance offered by the body to the passage of electricity is four times greater than that of an Atlantic cable. Hot or warm water overcomes this as effectually as any means, and when applied in considerable quantity, as in the bath, the afflux of blood to the skin vastly increases its conductive power in addition to simply moistening the exterior. The person is also protected from atmospheric exposure by the even temperature of the bath, and from the cold consequent upon the evaporation of the warm water ordinarily used on the sponges of the electrodes. The liability to a cold after a warm bath is generally considered by electricians, I believe, to be greatly diminished by the use of the electricity. In my experience it almost never occurs.

The advantages claimed for this method may be briefly reviewed as follows: Where the bath is used as a general tonic, or for the relief of a disease affecting large portions of the body, as paralysis, rheumatism, etc., the electricity can be applied more thoroughly and gently, agreeably if you choose, and with better results, than by the usual plan. Its application to the surface is equalized; the skin is in better condition to conduct the current; it is less fatiguing to the patient; the vaso-motor system and nutrition and innervation are more profoundly affected; and some of the uncomfortable features of general faradization are obviated.

If it is desired to secure localized effects, they can be attained by means of the movable electrode, or often by the position of those attached to the tub. Local and diffused effects can in this way be secured at the same time, if desired. Where *strictly* local treatment is indicated, as in aphonia, neuralgia affecting a single extremity, writers' cramp, bronchocele, etc., I do not claim a special advantage for this method over the one ordinarily employed, and it certainly involves unnecessary labor in dressing, drying, etc. The additional inconveniences, however, attending the bath, over "general faradization," are practically insufficient to require consideration.

One or two practical points, and I will only detain your attention long enough to give a resumé of the diseases in which I have seen its use attended with the most beneficial results. A surgeon to the Massachusetts General Hospital once told me, "why you can get little or no electricity in the water in that way, without touching the electrodes. All I can say is "try it." I have seen a strong man doubled up as though he had been struck in the epigastrium by a club, in determining that point. From strong spasmodic muscular contractions the current can easily be so graduated as to be felt only as though a gentle breeze were blowing on the skin.

In regard to age or constitution, I have seen it used with equally good effect by children and old people, delicate and robust. The temperature of the water usually ranges between 90 and 100° Fah., the average being 95°. The baths may be given from one to three times weekly. It has been my experience that little or no better effects result from using them any oftener. They should not be used too soon after meals. It may be necessary to continue them a number of weeks before improvement shows itself, although, as a rule, this is not the case, amelioration of symptoms and manifestations of the disease usually occurring early, if any benefit is to be derived. In a very small percentage of cases these baths cannot be taken. These exceptions usually occur in those who cannot take the faradic current in any form of administration, or who cannot take a warm bath. With these the galvanic often answers admirably. I have not observed that some temperaments will bear electricity in the bath which will not tolerate it elsewhere, as has been stated by some observers.

The field of diseases to which this bath is applicable is quite wide, and embraces many of those which are most commonly met with. It is not by any means confined to diseases of the nervous system. Rheumatism, gout, dyspepsia, general debility, constipation, malaria, sluggish liver, nutrition and circulation, benign tumors, simple muscular atrophy, amenorrhœa, impotence, sprains, synovitis after the acute stage, opium habit, alcoholism, etc., are among the most prominent of those met with in which its exhibition is attended with marked beneficial results.

In rheumatism, whether in the acute, sub-acute or chronic stages, its effects are often almost magical, the therapeutical effect of the hot water being superadded to those of the electricity, besides being efficacious. It is certainly a most agreeable way of applying this agent in this malady. The same holds true in regard to gout, which is not, however, so uniformly cured.

In general debility I know of no single remedial agent which produces such excellent results. A person, before taking the electricity, may be oppressed by a feeling of lassitude and weari-

ness, but will come out of the bath doubling up the biceps, to show his spirits, and with a delightful feeling of buoyancy and invigoration. The circulation is quickened, and the cutaneous capillaries learn the lost art of dilating again. The appetite is often markedly improved, tissue metamorphosis is hastened, the liver and bowels are stimulated, the general func ions of nutrition assume a new activity.

In constipation and dyspepsia, its use is often attended with great improvement or recovery, but not more so than with many other means. In malaria it seems to be a very useful eliminator and tonic, fortifying the body against the inroads of the subtle poison. In torpidity of the liver it offers a direct stimulant, potent and efficient. In simple muscular atrophy it is almost the remedy *par excellence*, and does a great deal toward restoring lost functions and strength.

In benignant tumors of various descriptions it has not proved nearly so reliable as the galvanic current, in my experience, although often valuable, alternated with that current. For amenorrhœa, with the vaginal electrode, it offers one of the most powerful agents with which I am acquainted; indeed; it will often bring the menses on before their time—an accident to be guarded against. It is also quite useful in impotence. In both sprains and synovitis, I have seen marked improvement under its use, but not, I must confess, very rapid, although more so, I think, than with simple medicinal treatment alone. In opium habit and chronic alcoholism, it usually completely subdues the inordinate appetite while in the bath, and its effects usually continue in lessening degree for several hours afterward. It recommends itself as a valuable aid to the means usually employed in the treatment of these affections. I have not observed the hypnotic effect from the faradic current, to any extent, which some writers have dwelt upon, and which is so marked a characteristic of the galvanic current.

In nervous disorders the range of the application of the electro-thermal bath is also large. I have observed beneficial effects in local anæsthesia, in nearly all the pareses, whether from central or peripheral lesions, or from lead, arsenical or malarial poisoning. An interesting case of arsenical paralysis of the legs below the knees is now under treatment. In neurasthenia with its myriad attendant symptoms, in disturbance of sensation, in hysteria, in its numerous manifestations, in melancholia, and in almost all forms of neuralgia, it offers a useful and often speedily curative remedy. The list might be much lengthened, but the number presented will suffice as an illustration of its field of usefulness, and are presented from cases actually treated.

In many nervous diseases I greatly prefer the galvanic current, from its much greater sedative effects. Thus, in locomotor ataxia, epilepsy, insomnia, cephalalgia, chorea, herpes, most inflammatory conditions, tinnitus aurium, hyperæsthesia, etc., it has seemed to me most advantageously employed.

In closing, I would remark that the electrical baths which I have seen figured or described in books have seemed "exceedingly crude," as Beard and Rockwell have denominated them. This, however, is not a proper time or place to discuss them differentially. The few facts which I have presented from my experience, in so rough an outline; I have tried to give in the interests of medical progress, not unmindful of the fact that there exists a prejudice in the minds of many against both electricity and everything balneological.

PNEUMONIA TREATED BY VENESECTION.

BY JOSEPH STUBBS, M.D.,
Of London Grove, Pa.

Perhaps no one who claims to be read up in the periodical literature of the day has failed to read the interesting articles of Dr. Hiram Corson, on "Blood-letting in Acute Inflammatory Diseases; more Especially in Pneumonia."—MEDICAL AND SURGICAL REPORTER, Vol. 44, Nos. 3, 7, 10, and 16, and Vol. 46, No. 14. The strong testimony and practical bearing of those papers, coming from a man of long experience and close observation, elicited a deep interest in the profession. The same views were ably sustained by Professor S. D. Gross, and Dr. E. Michener, who added the weight of their extended experience in favor of reviewing the "lost art" of blood-letting in inflammatory diseases.—*Country Practitioner, Feb., March, and April*, 1881.

Strongly impressed with the testimony of a trio of such men, drawn from their own personal observation and experience, in favor of bleeding as the first, indeed, as *the* remedy in pneumonia, I had resolved to test it for myself whenever an opportunity should present. I did not wait long, until Dr. Michener, one of the trio named, himself became my patient. I was called from my bed at an early hour on the morning of Second Month 26th, 1881, to visit him, and promptly responded to the call. He gave me the following history:—

"I am now in my eighty-seventh year. Five

days ago I fell on the ice and sustained a transverse fracture of the humerus, near its upper extremity. There was no displacement of the fragments, and it appeared to be doing well. There was no unusual shock or irritation. Last evening I was quite chilly, without any sensible cause, had tenderness and aching in the submaxillary glands, more marked in the tonsils. On retiring, after a short sleep, I awoke; the signs of the evening had passed away, and were replaced by others of a graver character. I now had well pronounced fever, accompanied with weight and a burning sensation in the right thorax. The breathing was oppressed and hurried, more so when lying down. These symptoms were persistently aggravated during the remainder of the night."

I found him with a dry, hot skin, the pulse frequent and feeble, or rather oppressed. There was dyspnœa, the breathing short and hurried, with oppression and some pain through the right mammary region, increased by coughing, lying down, or attempting to draw a full inspiration. The percussion sounds were not much changed. The respiratory sounds were feeble and harsh, with crepitant ronchus, quite distinct, over the right lung. My diagnosis was pneumonia, to which conclusion the Doctor had already arrived.

Although I had just read the Doctor's article in the *Practitioner*, in which he so strongly recommends blood-letting in this disease, I said to him: "Doctor, notwithstanding your views in reference to blood-letting, you would not advise it here, on account of your advanced age. You are too old to be bled." The prompt reply was: "That must be tried. I do not know that age should make any difference. If I have but a little blood in store, a proportionate quantity should afford relief, especially now, while the disease is still in the congestive stage. If thee does not wish to use the lancet, I shall be obliged to use it myself."

I, of course, assented. He then handed me his lancet, with explicit directions how to proceed.

"I prefer to sit up. A less quantity of blood will suffice. When the vein is opened, then apply the ear to the chest and the finger to the pulse, and carefully watch the results, without much attention to what may be in the bowl. Remember, that our purpose is to relieve the lung of its burden. As that is accomplished, the blood will again resume its course. The pulse will become slower, fuller and softer. The skin will lose its unnatural heat, perhaps become moist. The lung sounds will become normal, and I shall be able to draw a full inspiration. When these ends are reached, it will be time to stop the blood. Probably not until then."

The Doctor's programme was strictly observed and the changes distinctly noticed. When he drew the first free breath, the blood was immediately stopped. On recurring to the vessel, it was found to contain ℥ xv of blood.

It is needless to extend the report of this case further. Indeed, I had no case left to report. The disease was suddenly and completely aborted, and required no further attention. My only prescription, a mild expectorant, was never used. It is proper to add that the lung has not been left crippled, as too often happens under adverse modes of treatment. If bleeding will do this for a *spare man, of the Doctor's age*, what ought we to expect from its use in young and plethoric subjects? I am now convinced that the danger from blood-letting has been as much exaggerated as its use has been neglected. If so, it is not unreasonable to suppose that many valuable lives have been allowed to perish for the want of its timely and judicious employment.

Remarks by the Patient.—Even when blood-letting was in the ascendant, many physicians hesitated to use the lancet in the later periods of life, lest the recuperative powers should be too feeble to restore the waste of the vital fluid. While proper caution is always commendable, there is no proof that this hesitancy is well founded. It is obvious that the grade of morbid action, and the quantity of blood required to subdue it, are dependent on the same conditions. Many months have elapsed since the occurrence, and there is no sensible impairment of my physical or mental condition which can be attributed to the loss of blood on that occasion.

Whatever may be the opinion or the prejudice of the reader in relation to this case, it presents three striking features which can hardly be questioned:—

A rapid and extensive congestion of the lung.

A high grade of morbid action tending to destruction of important vital tissue, and

A sudden and complete arrest of the disease by blood-letting alone.

For all practical purposes pneumonia is an acute inflammation of the lung; nothing more, nothing less. It represents three stages: the congestive, the inflammatory and the destructive stage. Their peculiar organism and complex functions determine the character and the fatal tendency of the disease, and demand for it that prompt and immediate relief which the lancet is

so admirably adapted to afford, as shown in my case. We unhesitatingly place it on record as a *paragon* of therapeutic practice. It is not new. There have been many such cases, and there will be many more. Physicians will not always ignore the facts of their own experience. And the people will learn to prefer prompt and easy relief from the lancet, to the feeding, stimulating process which so often fails in the end.

REPORT OF TYPHOID CASES.

BY T. CURTIS SMITH, M.D.,
Of Aurora, Ind.

The following history of a bit of experience in a circumscribed endemic of typhoid fever may not be without interest, although it is in some measure a repetition of old statements, made and reiterated many times by many writers:—

On the 15th of Dec., 1881, I was called to see S. A., aged 14, one of a family composed of the father, three sisters and one brother. One sister was aged 17, one 12, one 6, and the brother 8. The father was a puddler in the iron mill of this city. The place of residence was a frame dwelling, with basement kitchen, and cellar, two rooms on the ground floor, and bed-rooms on the second floor. It was a neat double cottage, seemingly well arranged for tenant use at a moderate rental. Unfortunately, the basement story was so low that when there was any quite high swell in the Ohio river (as there is nearly every year, often several times in a year), the water rises over the floor, and drives the occupants to the story above. The water supply was derived from a cemented cistern near the basement kitchen door, the top of which was lower than the basement floor. The back-water would, therefore, sometimes enter and fill the cistern before rising enough to enter the basement of the dwelling. It is to this water supply in the cistern and the character of the back-water that we wish to call special attention. This city, Aurora, is situated on the north bank of the Ohio river, and is divided by Hogan creek into two parts. There is much low ground within the city limits, that is almost yearly overflowed by back-water. The residence in question was located on this low ground. We desire you to note that on the right bank of Hogan creek, about two hundred yards from this dwelling, is a large distillery, with accompanying hog and cattle pens, where many hundreds of these animals are fed every year. The debris from these pens runs down into the creek, and when the creek is low it accumulates in vast quantities, yielding no very roseate odor, but is, in fact, a nauseous insult to every man's olfactory that comes near it in hot weather. Besides the filth that runs into the creek, much accumulates under and about the pens. Over this the water rises at times and soaks away much of its power for mischief. Now, it so happens, from the lay of the banks of this creek, that the first place where the back-water breaks over its boundaries is quite opposite the residence in question, and about one hundred yards from where it is located. There is no perceptible current in the water when it backs toward this house, yet any one can at once see that water rising over this mass of filth can but be impure in a marked degree; and this is the kind of water that has more than once filled the cistern at the residence before named. Still further, there stands about forty feet from the cistern a double privy, which the back-water enters before reaching the cistern. Its contents, of course, go into the water, and certainly take nothing of purity and healthfulness away from the already muddy, filthy flood. This water, whether foul or not, finally rises above and pours into the mouth of the cistern, near the kitchen door. No one need be told of the heavy sediment always left by back-water, where it stands any considerable time. There must, therefore, also, of necessity, be a sediment left in the bottom of the cistern in question. It could not be otherwise. Now the landlord always has the water pumped out of the cistern after the back-water goes down. This is right. But he does not always have it scrubbed and well washed out, in order to remove all the filthy sediment that is, of course, left behind. This is the situation and environment, in a sanitary sense, in which I found the family in question. Whether the water was the cause of, or carried in solution, the germ that gave rise to typhoid fever I do not know, but I do know that I could find no other cause in the house or surroundings, nor in the diet of the family. I will further say that the house was kept neat and clean, so that nothing in the house could be laid to the charge of the housekeeper, in the way of want of cleanliness.

But while we have called special attention to the qualities of the back-water as destroying the healthful qualities of the drinking water in the cistern by overflowing its top, we wish also to say that, according to the best judgment we could form, the cistern also leaked and permitted this sweet flavored (?) surface water to flow into its already impure contents. A day or two after it had been pumped dry as the pump in it would permit, there was no trouble in again pumping

water out of it, though none had been permitted to run into it from the roof.

Another fact worthy of note, as a disease producing factor, is the fact that this same back-water left its unwholesome sediment all over the flat bottom land round about this and other dwellings adjacent to it. This same water also, rising over the basement floor and into the cellar, would have no wholesome effect to leave after its recession.

Moreover, a whole family living in the next house to the one in question, and somewhat similarly situated as to water supply, were twice poisoned by the water in their cistern. At least, this was the cause given the attending physician at the times of their illness. Five other families round about this habitation have not had typhoid fever nor malignant diseases, recently, as far as I know; but during the hot dry months of last summer and autumn I treated a number of cases of most obstinate diarrhœa in children, in the same neighborhood, and some in this same house. On the east side of this flat I treated also some most villainous attacks of dysentery, that refused to yield until the patients were removed to a more wholesome locality. And during the month of December, 1881, I treated in the same house, last above named, two cases of diarrhœa, with malarial complications, on which I could make little impression while living in that place. On removal, the disease disappeared in a little time. In this instance also a surface water cistern—for it was practically such—seemed to be the source of the diseases afflicting the inmates.

Returning now to the family first named, the boy, aged 14, was attacked with a violent cold, and reported to me on December 15th, 1881. There was considerable pulmonary congestion, high temperature, and well marked cerebral disturbance, within the next forty-eight hours. These measurably subsided, so that he seemed quite relieved, but still had a white, tremulous tongue, high pulse and temperature. By the fourth day from first reporting to me at my office there could be no doubt that we had to deal with a severe attack of typhoid, with some pulmonary disease still remaining, and cerebral symptoms for a time uppermost. But the whole trouble settled into a regular but fierce attack of pure typhoid, which, but for the greatest care, must quite surely have ended fatally. On the 26th of December, thirteen days after the first case was attacked, the oldest daughter, aged 18, began to manifest prodromic symptoms of the same form of fever, and January 1st, 1882, took to her bed, where she remained for four weeks, the fever leaving her on the eighteenth day, prostrate, anæmic, thin and weak. The fever in the lad before named continued to the twenty-first day, when it subsided.

On Jan. 10th, 1882, the youngest boy, aged 8, manifested clearly the presence of the fever, though he played as usual, or went on short errands and chores for the family. Still, for two weeks, I did not find his temperature below 101° in the morning and 103° in the evening, and for four days it ran up to 103° in the morning and 105° in the evening. He became very thin and pale, had some diarrhœa, pulse rapid and feeble, but he all the time had a good appetite, digested his food well, slept well, and never took to his bed. Often complained of being tired. This was as clear a case of "walking typhoid" as I have ever seen, and without the thermometer might have escaped without a correct diagnosis until brought down. He was treated as regularly as those who were prostrated and in bed, only less restricted in his movements and diet.

On the 8th of Jan., the second daughter, aged 12, began to complain and show quite a rise in temperature. On the 10th, took to her bed, to endure a more prolonged stretch of high temperature than either of the preceding cases. The onset of the second week gave a temperature of 103 in the morning and 105 in the evening. This soon changed to 104° morning, 105° evening, and, with the exception of a slight morning variation, and once running up to 105½° evening, it stood at this for ten days, without a break in its even range, then dropped to 102° and 101° morning, and 104°, 103, then 105° evening. For days life trembled as in the balance, before any break in temperature came that offered a ray of hope. The first case mentioned was also a most fierce attack. The general range of temperature averaged throughout was not much above that of the average cases of typhoid, but at one time the thermometer registered 106.5°, several times 105°, often 104°.

These cases were treated by the use of heroic doses of cinchonidia, or quinia, every evening, *i. e.*, grains x to xl, according to the ages and strength of the patients, also with the fever mixture commended by Bartholow, *i. e.* tinct. iodine and carbolic acid, by as nearly continued bathings as possible, cold drinks, *ad libitum*, and as the strength failed or the fever gave way, some form of alcoholic stimulant was given, and finally the free use of digitalis, as the weakness of the heart became manifested. Food was regularly given. In the first case, life seemed so near extinct at one time that the hypodermic use

of ammonia was resorted to, and also, by the same method, whisky and atropia. After rallying, stimulants alone were relied upon in connection with nourishment. In the last case atropia was often resorted to to rouse the circulatory and respiratory centres, also nux vomica. But the main line of treatment was pointed out above. Of course, nourishment was carefully attended to, and kept up with great care and precision throughout the whole course in each case. No fatal results occurred in any of these cases.

Typhoid fever was not epidemic in this locality. There had been cases here and there for more than a year, but not many of them, and few of them of the low, severe form. Therefore we believe that epidemic influence had nothing to do with the production of these cases. No case of typhoid fever had ever occurred in the house where this family resided, for it was quite a new house and its history is well in hand. Reasoning by exclusion we find no other cause than that of the water on the one hand and the malarious air from the adjacent flats covered with foul sediment from the back-water, coming, as it must, up the foul creek, and taking into solution the debris from the cattle and hog pens on its banks. A strong reason for suspecting the drinking water was the fact that while all the other families in that immediate vicinity were exposed to the same general causes, none of them were subjects of the disease except this one, this being the only family using water from this cistern. I know it is not easy to trace the source of the poison in these cases, and therefore do not claim to fix its origin with any certainty.

The points of interest in these cases are—

1st. The regular succession of them, one following the other at quite regular intervals as to time of attack.

2d. The very marked high temperature in two of them, and the long continued high fever in one.

3d. The case of "walking typhoid," with its high and regular course of typhoid temperature while still up, eating well, playing, running errands, etc.

4th. Perhaps I may note the great value of the hypodermic use of stimulants in the extreme condition in the first case.

—An English Slaughterman makes the statement that but few calves have perfectly healthy livers, "not one in ten," most of them containing larger or smaller collections of putrid "matter."

Hospital Reports.

PHILADELPHIA HOSPITAL.

A CLINICAL CONFERENCE BY JOHN M. KEATING, M.D.

Reported by W. A. Edwards, M.D., Assistant Pathologist to the Hospital.

The Scrofulous Diathesis.

Gentlemen:—We will to-day study scrofula, which may be defined as a diathesis, characterized by disorders of the nutritive process, whereby the tissues are permitted to undergo inflammation from trifling irritants; by hyperplasia of certain parts, more particularly the lymphatics, and especially the glands of that system.

The inflammation is more apt to be of a subacute character, and its products are prone to cheesy degeneration. It is a disease of infancy and childhood, as you can see by the number of its subjects in this ward, rarely presenting its first manifestations in adult life. Scrofula may be either *congenital* or *acquired:* in the former it is seen in children of scrofulous, aged or nearly related parents, or in tertiary syphilis, tuberculosis, etc., of the parents, more especially of the mother, or again, from prolonged lactation from other children, rapid child bearing, or feebleness of the mother.

In the latter, the acquired, it is developed after birth, from a predisposition brought about by cachectic parentage. Artificial feeding or insufficient nourishment may be set down as a frequent cause, as are cold, moist, badly ventilated, sunless abodes, little movement of the body, preceding severe sickness or exhausting diseases in the first months of life, as the eruptive fevers, measles, scarlatina, pertussis, etc.

It can be transmitted by inoculation, and, in fact, it has been stated by some well-known experimenters, that the inoculation of tubercle results in the development of scrofula, and more recent investigators have demonstrated that there is no essential histological distinction between tuberculosis and scrofulosis of the lymph glands.

This resemblance is further borne out by the frequently simultaneous occurrence of tuberculosis and scrofulosis, and from the fact that scrofulous children not infrequently become tuberculous. The scrofulous new formations resemble the tuberculous, not only in themselves, but in their metamorphosis, cheesy degeneration, or simple atrophy.

Scrofula is frequently torpid or latent, as it was in this little baby, requiring an irritant to develop the primary symptoms. In this case vaccination was followed by all the manifestations of scrofula. It is scarcely, then, well for us to state that scrofula is contagious; but, as we said above, direct inoculations may produce it in one predisposed.

As vaccination, when carelessly done, is the readiest means for this transmission, either by producing simple inflammation and thereby awakening into activity the scrofulous diathesis, or the direct transmission of the blood or inflammatory products from a scrofulous child to another untainted; hence, we should be on our guard.

Symptoms.—The diathesis usually develops or shows itself first upon the skin or mucous membranes, then the contiguous lymphatic glands, though at times periosteal lesions, or those of bones, may occur primarily.

If you will glance around the ward you will notice a number of children presenting scrofula in its various lights and stages.

This little one shows the various skin inflammations and eruptions of the disease, especially on the head and face, chiefly in the region of the nose, mouth, eyes and ears, mostly of an impetiginous or eczematous form; the latter is a very common eruption; it also illustrates well a scrofulous inflammation of the eyes, *i. e.*, phlyctenular keratitis. Conjunctivitis is usually seen in these scrofulous children.

Now if we turn to this patient we find the cervical lymphatics enlarged and well marked; this is of the character of a cellular hyperplasia, and sometimes we see the simultaneous formation of pus, or again, we may have the deposition of miliary tubercles.

These enlargements are of varying sizes; some are hardly visible, others the size of a pea or larger, and again others involve the whole gland. Cheesy degeneration is very prone to occur with suppurative inflammation around it, leaving ulceration and finally a permanent cicatrix, as we see in this woman's neck, the mother of our patient.

Otorrhœa and caries of the bones of the ear is an early and not infrequent manifestation of the diathesis, as these two little infants show us. A frequent symptom is inflammation of the bones and the joints—occasionally only of the periosteum, generally of the bone itself—which not infrequently terminates in caries or necrosis; this is most seen in the vertebræ or the small bones and joints of the extremities, especially the lower.

We occasionally see strumous dactylitis occurring in these children of a year or more, of whom we are unable to obtain any syphilitic history whatever. There is no peculiar anatomical characteristic of the individual affections of scrofulosis, nothing in the tumefaction of the glands, except their sluggishness; these non-inflammatory swellings are more like chronic œdematous infiltrations, occasionally more like œdematous connective tissue hypertrophies.

Characteristics of it, however, are the great ease of its appearance, in other words, the great vulnerability of the tissues, its sluggishness, its mostly persisting for years, its return without apparent cause, the ease with which the lymph glands take part and the length of time that suppuration of the latter outlasts the primary affections of the skin and mucous membranes.

The scrofulous diathesis may be exhibited in children whose features and forms are delicate, whose skin is transparent, and who are easily excited, with bright eyes and good intelligence, the so-called *erethistic* scrofulosis; or again, in those who are large and flabby, languid in movements, in whom an over production of fat is seen, especially in the nose and upper lip, the so-called *torpid* scrofulosis.

Scrofula and leucæmia are not identical, the first occurring usually in childhood, the second in manhood; the first being usually accompanied, in its advanced state, by diminished corpuscles and increased water, and only when in the state of inflammatory enlargement of the glands does it simulate the latter in having an increased number of white corpuscles.

The *prognosis* in the lower grades of the disease, with care, is good; in the more severe grades it not infrequently terminates in death; the latter result is generally brought about by tuberculous or scrofulous suppuration, or by miliary tuberculosis of internal organs, severe joint and bone suppuration, and, hence, marasmus, or again, by lardaceous degeneration of the various organs. We rarely see a scrofulous subject die through general anæmia.

The *treatment* should be prophylactic and curative; for the former we should avoid all those causes that I laid down as factors in acquired scrofulosis

We should see that our little patients who present this diathesis have plenty of warm clothing, fresh air and sunlight, occasional trips to the sea-side, with salt baths, etc. We should also see that their diet is carefully regulated and nutritious; an important article of the dietary is good, rich milk. The digestive organs should receive a large share of your attention. See that they are in perfect condition and maintain them so, if possible. You should order a proper amount of physical exercise, with little mental labor.

For the *curative* treatment our sheet-anchor is cod-liver oil, iron and iodine; the two latter may be combined as the syrup of the iodide of iron, or you may use the tr. ferri chlor. An important reinforcement to the cod-liver oil is the lacto-phosphate of lime. Tonics should not be given until you have corrected all evidences of marked intestinal derangement. Alcoholic stimulants must be used in moderation. I prefer the light wines or malt liquors to the stronger stimulants. Local ailments should be especially attended to. For glandular swelling you may use iodide of pot. ℥j, ung. stramon ℥j, or the ointment of the red iodide of mercury.

For the conjunctivitis I use atropia sulph. gr. ij–℥j; when phlyctenulæ occur you may dust with calomel.

The various skin eruptions, bone affections, etc., attendant upon this diathesis, need but little modification of your general plan of treatment.

Rœtheln and Morbilli.

We have before us the study of an eruptive disease, in fact, *two* of them, and I wish to call your attention to their distinguishing features.

These children are Swedes; they have just come from shipboard, where they have been exposed to the contagion of an exanthem, and also to the depressing influence attending a sojourn in the steerage. There have been a number admitted to this house, some with the eruption already at its height, others presenting simply the prodromic symptoms to be shortly followed by the eruption as you see it.

Let us study this little sturdy fellow. You will notice that he is covered with the eruption, and that it presents these characteristics:—

Upon the forehead it is almost uniform, of a

somewhat salmon color, not raised above the surface, but readily disappearing upon pressure; as it approaches the temples, islands of surface appear unaffected; the shore lines, if I may so term them, have a distinct crescentic character; you will also note that as the eruption spreads over the face it gives a decided blush of uniform redness to the cheek, of a rather darker color, bordering on a shining, crimson appearance.

Again it extends down upon the neck, with a more punctiform appearance, but still not raised to any very appreciable extent, in fact, looking more as if the color had been washed in by an artist. Let me call your attention, in passing, as the child turns its head from you, to the fact that you see distinctly the outline of the facial bones; in other words there is little or no œdema of the face.

I also call your attention to the fact that the eyelids are not swollen, there is but slight conjunctival redness, in some cases none at all, as is the case with intolerance to light.

The eruption in the soft and more delicate parts, as the chest, axillary region, inner forearm, the groin, and the site of the outer tibial muscles, bears a close relationship to that of the face.

In this it is said to resemble scarlet fever, though I must confess I do not see the similarity. Upon the coarse skin you have a coarse eruption, distinctly papular, scarcely raised, and attempting to form large crescents, "rising moon"-like in appearance. Here we note that the eruption is darker in color, bordering upon a purple.

The throat is red, of uniform redness, not punctiform, and the tongue, like scarlet fever, is *ermine* like.

The history given us is one of five days of prodromic symptoms and malaise. There have been sneezing and coryza, with a sore throat; a febrile tendency and a clear, ringing cough. There has also been, and there is at present, distinct enlargement of the cervical and post-cervical lymphatic glands.

In adults these give rise to stiffness of the neck and radiating pain down the back and upward toward the occiput. In this case there is but slight bronchial catarrh, even though the eruption is at its height, and the cough is paroxysmal, as you notice, and still croupy.

This eruption will last four days or less, and rapidly disappear, with no desquamation of the cuticle, but some stains will remain, which resemble the petechiæ of typhus fever, and last for a few days. This boy's temperature is now about 103°, but it will rapidly fall; the rapidity of cure is remarkable.

There have been some cases in this ward which have developed a severe bronchitis, and yesterday an infant died of complicating croupous pneumonia; this is a rare termination, and attributable to the exposure on shipboard, exhaustion from the sea voyage and close confinement, more than to the disease itself.

Now, what are the principal points to be noted? First, the character of the eruption; the absence of swelling of the subcutaneous tissue, especially of the face; the absence of marked conjunctivitis; the decided enlargement and tenderness of the post-cervical glands. I may remark that I deem the laryngeal cough, which remains *croupy*, as to be specially noted, and the marked absence of severe bronchitis with a loose cough shortly after the appearance of the eruption, which in measles shows that the mucous membrane has been affected as well as the cutaneous surfaces. The sudden cessation of the symptoms, disappearance of the rash and the absence of scaling of the cuticle.

Let us now study another epidemic which we have in the children's asylum.

This little girl, whom I show you, is two and a half years old; has been an inmate of the house for some time.

Several days ago she began to ail, suffering from a "severe cold in the head," with conjunctival redness: an examination of her throat showed an inflammatory action, with a decided punctiform or papular condition of the mucous membrane of the anterior half arches and of the uvula. There was also some enlargement of the tonsils and tenderness of the glands, also of the lymphatics at the angle of the jaws.

The next day there was a decided rise in temperature, with an aggravation of the symptoms, decided photophobia and swelling of the eyelids.

An indistinct eruption appeared on the temples, very pink in appearance and crescentic in form, like minute pin points in small crescents.

This faded away, to develop the next day with greater distinctness. The following morning she had a high temperature, 104°, the face was swollen, the eyes fiery red and almost closed; a profuse eruption was now on the cutaneous surface resembling that I have just described. There were no blotches, no even redness, but throughout it was papular, raised above its surface, and evenly crescentic. At this time the cough became frequent and the secretions of mucus from the laryngeal and bronchial membrane, like that of the conjunctiva and nares, was profuse.

It was a loose cough. The chest and arms resembled the back in appearance, but the back and nates, part of the thighs and buttocks, showed a coarser eruption, in regular ridges, decidedly papular. The bowels were also slightly distended, and there was at times nausea.

To-day you see the eruption at its height, and I call your attention to its color as well as to its other qualities that I have described. The color is now of a flesh-pink, though darker on the thighs and buttocks, being there more of a salmon color.

Now in this case you have evidences of marked bronchitis; you hear coarse and fine mucous râles; but I am happy to say you can detect at present no evidences of catarrhal pneumonia. It is needless to say that here we have a type of *measles*, and the marked contrast of these cases which I have shown you cannot be questioned.

We see our little patient to-day at the "cross-roads" of the disease. It may result in a gradual amelioration of the symptoms, with gradually lessening fever, a deeper-colored eruption, the gradual fading and subsidence of the œdema, and finally the desquamation of the cuticle in branny scales; or again, she may develop symptoms more typhoid in character, symptoms of malignancy, with croupous exudation in the throat, diphtheritic in appearance,

and, in fact, finally, death from blood-poisoning, with, in all probability, convulsions; or again, catarrhal pneumonia may develop and carry off our little patient in a few days.

I have shown you lately several cases of these forms, and you have studied their post-mortem appearances. You have, then, to tabulate the peculiarity of the eruptions; first their *seat* of appearance, its colors and its distinct papular (elevated) crescentic appearance; also the marked coryza, with swollen eyelids, and the conjunctivitis, upon the appearance of the extensive bronchitis with much secretion (a soft cough.) You have but little swelling of the lymphatic glands. In addition, you have had the punctiform sore throat, the prolonged stage of eruption, with the gradual fading and the marked desquamation of the cuticle. In addition to these you have the *complications* which are so numerous in measles and so rare in rötheln.

What is the treatment?

You have already noticed that I have laid great stress on the *complications* in discussing the future of these cases, and I may further add, that apart from the usual treatment of a febrile attack, the concomitant complications alone need attention; first to avert them, and secondly, to modify their severity. Rötheln, apart from these, which, as a rule, are not frequent, except in children previously exposed, is a mild disease, requiring only hygienic measures in its treatment; but *measles* in children who are strumous is an exceedingly fatal disease, especially in hospital and alley practice.

First you have the tendency of bronchial catarrh to extend and develop catarrhal pneumonia, and secondly, you have typhoid and diptheritic forms to contend with.

For the former you will find the counter irritation of warmth and moisture most important, with the administration of small doses of quinia during the day and bromide of potass., ammonia, or Dover's powder at night; the latter is especially efficacious.

You can give a fever mixture of citrate of potass., with the citrate of ammonia, and milk or chicken broth, at regular intervals.

I prefer the use of *hops* quilted in between layers of flannel and steeped in hot water, instead of poultices, covering it well with oiled silk, to prevent evaporation.

For the latter the most energetic tonic and stimulant treatment is required early in the attack, carbonate of ammonia, quinia, the vegetable acids, and alcohol, in large doses. The frequent use of hot baths, 98°, should any cerebral symptoms develop; a careful regulation of the nourishment, so that the child will take a suitable quantity at short intervals and in small amounts.

I am a firm believer in calomel in small and repeated doses, and alcohol in large amounts, when *diphtheritic* exudation or symptoms of malignancy show themselves.

I have also confidence in the external application of vaseline, which gives softness to the skin, aids in the reduction of temperature, and frequently gives a quiet night instead of the usual restlessness that accompanies cutaneous irritation, with a hot, dry skin.

Medical Societies.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated meeting, June 1st, 1882. The President, Dr. Edward L. Duer, in the chair.

Dr. B. F. Baer related the history of a case of **Punctured Wound of the Pregnant Uterus; Partial Escape of the Fœtus into the Abdominal Cavity; Retention of the Fœtus Five Years.**

October 4th, 1881, Catherine Curley presented herself at the Dispensary for the Diseases of Women, at the Hospital of the University of Pennsylvania, and gave a history which is essentially embodied in the following letter, addressed to Dr. Goodell from her physician, Dr. John Keogh, of Killaloe, Ireland. (This letter was received after the patient had been treated as described in this paper, but as it gives an intelligent description of the case at the time of the accident, it was thought proper to insert it here.)

"Catherine Curley, who was within a week of her confinement, was standing upon a chair, the back of which, with the exception of two uprights, had been broken away. She was at the time collecting brambles, and in stretching for one over reached herself and fell, and in the act of falling her right side came in contact with one of the uprights. A short time after she was found lying on the ground in a fainting condition, from which position she was removed to bed and I was summoned to see her. On examination I found a contused wound on the lower and right side of the abdomen, and in addition came to the conclusion that the womb was ruptured and that the fœtus had escaped into the cavity of the abdomen. There was intense tenderness and great distention. I immediately decided on giving her at once calomel and opium, the latter in large doses. After the third day I stopped the calomel and continued the opium. The pain and tenderness almost disappeared after a week, and I may say, from that period until she left here she never had a bad symptom.

"Several medical men in this county expressed doubts about the correctness of my diagnosis, but I at once convinced them by presenting the woman for examination at Limerick, a city near here, where many men of eminence and long experience saw her."

Dr. Keogh does not say that the prong of the chair was driven into the abdomen. It appears, however, that such was the fact.

It would seem incredible that the pain and tenderness should have almost disappeared in a week, and that she should not have had a bad symptom until five years had elapsed. She, however, recovered from the accident, and, strange to say, menstruated three months afterward, and has been doing so regularly ever since. To make matters worse, if possible, her husband, who was in the last stage of phthisis at the time, died within a week, and she was left, without means, to support a family of five small children. This she did through four years, by manual labor. Three years ago she came to this country and settled in Salem, N. J., where, last summer, she was under the care of Dr. E. C.

Sharp, at which time she passed through an attack of what seemed to be typho-malarial fever, in consequence of which she became somewhat emaciated and her muscles became relaxed and toneless. This allowed a hernial protrusion through the puncture in the abdominal wall; for this she sought relief, hoping to procure a suitable truss. I only obtained the history of the accident by direct questions in regard to the cause of the hernia, that being regarded by the patient as the greater difficulty and the one requiring treatment. Physical examination, with the patient in the dorsal position, revealed, by palpation of the abdomen, a circumscribed mass in the hypogastric region, extending as high up as the umbilicus and a little further to the left than to the right of the median line. It was about the size of the pregnant uterus at the sixth month, rather flaccid, and pressure on it gave to the hand the sensation of loose bones moving over each other, a kind of crepitus. On the right side of the abdomen, a little below the umbilicus, there was a round perforation about the size of a silver dollar, which seemed to penetrate everything except the skin. Through this break in the abdominal wall the intestines protruded when she was upon her feet, constituting the ventral hernia, for which she desired the truss. Examination *per vaginam* gave the following result: The cervix-uteri was small, hard, rather low down and pointing forward, in the direction of the vaginal orifice. The os externum was small and circular, but it was patulous, and flowing from it was a peculiar yellowish fluid, slightly fetid. The finger carried posterior to the cervix discovered the body of the uterus enlarged and apparently expanded around the loose bones referred to above. Now, carrying the finger to the anterior surface of the cervix, the same bulging forward was discovered and the same continuation of the anterior wall of the cervix into what appeared to be the anterior wall of the developed uterus. Bimanual examination seemed to confirm the opinion already forming, that the fetal remains were still, in part at least, within the uterine cavity. On the right side of the uterus, near the fundus, there was a prominence; otherwise the walls were smooth. I now passed the sound through the os and into the uterine cavity, when it came upon a mass of bones, which seemed to be loosely held together by disintegrating soft tissues. The instrument was readily passed to a depth of six inches, and could be moved about with the greatest ease and without the least sensation of pain to the patient; its withdrawal was not followed by any discharge. There was nothing about the case which led me to suspect even that the sound had not really passed into the uterine cavity, but instead, that it might have passed through an opening in the uterine wall near the cervix, into an extra-uterine cyst containing the fetal remains. It may, however, have passed through the opening which was afterward found near the fundus, but not before meeting with that portion of the remains surrounded by the expanded but flaccid uterine walls.

I was, naturally, I think, rather inclined to disbelieve the history of rupture of the uterus, from such an accident, to a degree sufficient to allow the child to escape into the abdominal cavity, since the subject was alive and before me. I sought to explain the unusual condition by one of the following hypotheses, viz.: first, that the pregnancy had been an extra-uterine one, and probably of the interstitial variety; that the accident resulted in the death of the child merely, and not in the rupture of the gestation sac. That it had then remained a harmless body until the patient had become reduced by the fever noted above, when it began to disintegrate, from decomposition, and be driven off per vaginam, after first ulcerating its way through the uterine wall into the cavity of the uterus; but this could not have been so, and the physical condition set down as the result of my examination exist. Second, that it was one of those very rare cases of so-called missed labor, in which, for some reason, shock of an accident, for instance, by which the nervous system is so depressed that there is not power enough to cause uterine contraction, the product is retained indefinitely within the cavity of the uterus. Third (and considered the correct explanation), that the uterus was really ruptured, but that a portion of the child escaped through the rent, thus preventing by pressure a loss of blood which would otherwise have probably resulted in the death of the patient, and that the portion which projected through the rupture became encysted, thus forming a cavity continuous with the uterine cavity, the whole mass remaining harmless until, through intercurrence of an exhausting disease, decomposition set in and it began to poison the patient. It is not necessary to offer an explanation, if the latter hypothesis be correct, why the uterus did not contract and expel its contents; because it is well known that in the event of rupture occurring during labor the pains immediately cease. But in any event expulsion could not have been accomplished here with the child held fast in the rent. Then, I think, the fact that the patient came so readily out of the collapse and recovered so quickly, and that the child lived so long (it is said to have lived three days), prove pretty conclusively that there was no great blood loss, and that the child did not escape entirely from the cavity of the uterus. The child dies very soon after it is expelled into the abdominal cavity, for two reasons, viz.: maternal hemorrhage, and interference with the function of the placenta and cord. Hemorrhage did not occur, if my theory is correct, for the reason stated above, and the functions of the placenta were not interfered with at once, because it was not separated from the uterine wall suddenly, nor compressed, as would have been the case had the uterus been empty and contracted.

My advice to the patient was that she submit to an operation for the removal of the decomposing mass, as I considered that she was suffering from slow septic absorption. The operation I suggested was dilatation of the os uteri and removal of the dead product *per vias naturales*. This I looked upon as the most feasible operation, for the reason that it seemed to be of such easy access through that channel, and therefore the one which would be attended with the least amount of danger. Removal by

laparotomy would have been most hazardous, since it would have been necessary to open the cyst and therefore the old rupture of the uterus. There would have been a fistulous opening in the uterine wall, which would have been closed with difficulty if at all. Moreover, the sac would very likely have ruptured, thus precipitating the contents into the peritoneal cavity. This, of course, would have been a grave complication, as the decomposing material would have been removed with difficulty and danger. Against removal through the os uteri was the possibility, if not probability, of rupture of the sac containing that portion of the fœtus outside the uterus, and expulsion of the contents into the abdominal cavity. This might have necessitated laparotomy, for the cleansing of the peritoneal cavity.

The patient, however, refused at that time to have the operation performed, and returned to her home.

December 16th, 1881, she again presented herself at the Dispensary, and exhibited undoubted evidence of septic absorption, in rapid pulse, evening rise of temperature and night sweats. Examination now showed the mass to be much lower in the hypogastrium, and apparently smaller than at the previous examination. The cervix was, however, of the same length and still hard, with no tendency toward dilatation of the os. The sound revealed the dead product to be nearer the os, and, altogether, this examination served to confirm my former opinion, that the product was largely contained within the uterine cavity, and that it could be removed through the os and vagina. This opinion was strengthened by the fact that there had been evident contraction of the walls surrounding the mass. She still refused to submit to the operation, and returned to her home. Her health continued to depreciate, and she was glad, on January 3d, 1882, to enter the gynecological ward of the Hospital of the University, in charge of Dr. Goodell.

After careful examination, Dr. Goodell confirmed, in the main, the opinion expressed above as to diagnosis and treatment, and two days later introduced into the os uteri one sponge and four laminaria tents. Next day the patient was anesthetized and the tents removed, when an effort was made to remove the fœtus. A fenestrated polypus forceps was passed into the cavity and made to grasp the contents; this was readily done, but the removal was not so easily accomplished, for when traction was made it was found that the fœtus was held firmly somewhere, and that it was so disintegrated that only the portion within the grasp of the forceps could be withdrawn with the instrument. This was repeated a number of times, each withdrawal of the forceps bringing away a bone or some broken down soft tissue. A discharge of about a pint of very fetid, thin fluid took place at this stage of the operation. The os was now becoming so small, from contraction of the cervix, that the forceps could scarcely be made to pass, and an effort was made to secure further dilatation by the use of Molesworth's dilator. But it would not work, because it was out of order, from long disuse. The only thing left to do was, either to introduce another set of tents and wait until they had dilated the cervix sufficiently, or incise the neck to the vaginal junction. The latter was done. The danger of septic absorption from such a proceeding was fully considered, but it was decided that to introduce another set of tents, let the patient come out of ether, and wait for their slow dilatation, would be the greater evil. Before and after the incision the parts were thoroughly disinfected by injections of a permanganate of potash solution. The same polypus forceps were now more readily introduced into the cavity and the mass broken up. This was followed by a profuse, thin, bloody, purulent discharge, of the most fetid character. An injection of the permanganate solution was now made, into the cavity of the uterus, until it returned unchanged, when another effort was made to remove the contents. After working for more than half an hour only a part of the product was withdrawn. At this stage of the operation considerable hemorrhage occurred, and this was increased with each endeavor to dislodge the mass from its nidus. For this reason, and because the patient was becoming weak (she had now been under ether one and a-half hours), it was thought prudent to discontinue further efforts for the present, and to depend upon antiseptic injections and contraction of the uterus to remove the remainder; or at least, to allow the patient to recover from this desperate condition, and gain strength to stand a second effort, after the mass had undergone further disintegration. There was, also, a fear of rupturing the cyst containing that portion outside of the uterine cavity, by further efforts.

The patient came out of the anesthesia slowly and in a state bordering on collapse, in which condition she remained for nearly twenty-four hours, when she gradually reacted. During the next four days there was a very fetid fluid discharged from the cavity of the uterus, together with some debris from the decomposing mass. The patient had to be removed from the ward, on account of the odor. The treatment was supporting, with very frequent irrigation of the vagina and uterine cavity with antiseptic solutions.

On the fifth day after the first operation, the patient evidently suffering from septicæmia, and there being no marked effort on the part of the uterus to throw off the remains, she was again etherized and another attempt was made to remove them. It was found that time had somewhat disintegrated the contents, and that, therefore, removal would be more easily effected. Bone after bone, and occasionally a piece of soft tissue, were withdrawn, until, at the end of about an hour, the cavity was almost entirely, emptied. I say almost entirely, because it seemed impossible to to get every small bone away, and for several weeks afterward an occasional bone would be thrown off per vaginam. The cavity was thoroughly washed out with the disinfecting solution and an examination made, to discover the seat and extent of the rupture.

The cavity of the uterus was large and rough, and in the right side of its body there was discovered an opening, through which two fingers could be readily passed into a cavity beyond.

The recovery of the patient was slow; indeed, her life was despaired of for weeks, during which

time she suffered from numerous pyæmic abscesses. One of the abscesses was post-ocular, and resulted in the loss of the eye. She finally left the hospital, restored to health.

Removal of a Mammary Tumor and of Enlarged Axillary Glands—Primary Union.

Dr. W. H. Parrish exhibited the specimens and the following history: The patient from whom the specimens presented were removed is a lady of very slight stature, sixty-two years of age, and the mother of several children. There is no history of cancer in her family.

About twenty-five years ago she noticed a hard lump in the axilla, about the size of a partridge egg, painless, though tender on pressure. It was first noticed during a period of lactation; subsequently she was again confined and passed through the usual time of lactation, with a slight increase only in the size of the axillary tumor. For about twelve years after the first appearance of the axillary tumor she never noticed a lump in the breast. About twelve years ago, however, she, for the first time, recognized the presence of a mammary mass, then about the size of a partridge egg. This was about the menopause; at that time she lost in flesh, though her general health remained good.

The mammary tumor increased in size very gradually; continued free from pain, except when something would press unduly against it. About twelve months ago she thought the tumor had begun to increase in size a little more rapidly, and occasionally gave a sensation of soreness. This change in the tumor was ascribed by the patient to carrying in her arms a grandchild.

At the time of the operation the tumor in the breast was about the size of a small lemon, very hard and somewhat nodular, and was at the upper and outer border of the gland. It was perfectly movable over the pectoral muscle, and presented a distinct elevation above the general skin surface. The skin was not entirely movable over the mass, but was not hardened or otherwise altered in character. There was no nodular involvement of the integument. The superficial veins were not enlarged. The nipple was not retracted, seemed entirely normal, and no fluid could be pressed out of it.

There were three enlarged axillary glands, the largest very hard and a little larger than a partridge egg. There was no enlargement of the glands above the clavicle. Owing to the long duration of the masses, their entire mobility, the freedom of the skin from nodular infiltration, the absence of retraction of the nipple and of oozing from it, and also owing to the evident atrophy of the mammary gland, I concluded not to remove the entire breast, but only the tumor, including those of the axilla, and to remove also the integument overlying the mammary tumor. This I effected by an elliptical incision, and then extending the incision to the axilla, removed three enlarged lymphatic glands. It was not necessary to ligate any vessel; the oozing, which was not great, was stopped entirely by the use of hot water. The incision was about seven inches long. The edges were approximated by deep silk sutures. A few strips of rubber adhesive plaster were applied, and all covered with a layer of salicylated absorbent cotton, and the chest surrounded with a flannel binder. This entire dressing was allowed to remain until the fourth day, when, on removal of the cotton, it was seen that primary union had been secured throughout the entire incision. There was neither hardness nor swelling, to indicate inflammation. On the sixth day the sutures were removed, and on the tenth day the patient sat up. No medicine of any kind, not even an anodyne, was given during the entire treatment.

The long duration and small size, the normal appearance of the nipple, the freedom of the skin from pitting and nodular infiltration, and the mobility of the mammary tumor over both the pectoral muscle and on the mammary gland, have led me to hope that the growths are fibromata; but the enlargement of the axillary glands and their induration make me fear carcinoma.

Microscopical Examination by Dr. Henry Beates, Jr.

The specimen presented by Dr. Parrish is of unusual pathological interest. When it is remembered that the growth was present for nearly thirty years without undergoing a noticeable change, and only during the last year occasioned suffering and was accompanied with axillary involvement, the question of malignancy suggests itself, especially as the clinical history almost forces the diagnosis of adenoma. As many representative pathologists incline to the belief that typical mammary adenomata do not undergo carcinomatous degeneration, and many assume a conservative or non-committal position, this instance is of unusual interest and demands close study. Sections were made through the mass, and including the cutaneous surface. The skin, so far as the striatum corneum and rete-mucosum are concerned, is normal, but in the corium are areas of inflammatory changes. The radicles of several of the vascular papillæ are choked and surrounded by numerous embryonic cells and inflammatory corpuscles. The larger vessels are in a like manner involved, and the tissue in their immediate proximity infiltrated. The pons reticularis, where it becomes continuous with the subcutaneous connective tissue, is, in many places, the seat of proliferated connective tissue corpuscles.

The *glandular structure* shows beautifully its purely adenoid character. The acini, although filled with cells and almost hidden from view, are, with care, easily distinguished. The inter-acinous connective tissue is hyperplastic. The hyaline membrana propria is partially destroyed, and the acini filled with degenerated epithelial cells and cellular elements of increased size, possessing many nuclei. Some of the acini have the membrana propria entirely destroyed. The lymph spaces are occluded by cells, multinucleated and of increased size and irregular contour. The inter-acinous fibroid tissue presents incipient formation of stroma and aggregations of cells.

The axillary gland is completely altered in its structure, and instead of the mass of lymphoid cells, occupying large spaces bounded by the characteristic fibrous stroma, with its triangular basal form, we have typical carcinomatous structure. Fibroid stromata, joining at acute angles, forming numerous interspaces filled with irregu-

lar multinucleated cells, characterizes the degenerated gland as carcinomatous. This fact, in conjunction with the changes seen in the mammary gland, prove conclusively that the breast tumor was originally a typical adenoma, which, after thirty years, began to undergo malignant degeneration, and became a centre from which the axillary glands were infected. Dr. Robert P. Harris remarked that a point of great interest in the history of this tumor was the long period during which it remained dormant. He had had under observation a case in which a mammary tumor had remained perfectly dormant for seventeen years, during which two pregnancies occurred. After the second labor the tumor commenced to enlarge and become painful. An operation for its removal was performed some months later, when it had attained the size of a duck's egg. A chain of nine enlarged glands was removed with the tumor. The tumor recurred in the same breast and was followed by one in the other breast and numerous hard, nodular growths, over the entire body. Her death was due to this cause.

Two aunts of this patient, living in the South, had died of cancer. A sister had a tumor in the abdominal wall, which was allowed to attain the size of a door-knob without interference. At that time Dr. Agnew and other surgeons were opposed to the advisability of an operation. After a year the tumor commenced spontaneously to discharge a purulent matter. It was then successfully removed by Dr. Agnew, who pronounced it an encephaloid growth. It had made no attachments to the underlying vital tissues, and has shown no sign of returning. Two years have elapsed since the operation.

Editorial Department.

Periscope.

The Physics of Nerve-Stretching.

Dr. J. Symington, in the *British Medical Journal*, after detailing a number of experiments, gives the following conclusions:—

My experiments clearly show that the great sciatic nerve is able to withstand a considerable strain; but they also indicate the necessity for caution; more especially in the downward traction of the nerve. I have several times attempted to break this nerve in the dead subject, but have invariably failed, although the nerve was greatly stretched, and I sometimes heard suspicious crackling noises. The suggestion of Dr. John Cavafy, in the *Journal* (December 17th, 1881), that surgeons should come to some more definite idea of the amount of force employed, should certainly be acted upon. There are several points in connection with the operation of nerve-stretching, which have not apparently been sufficiently considered. If a nerve, such as the great sciatic, having an almost direct origin from the spinal cord, be pulled downward, an anatomical examination will show at once that almost the entire strain is borne by the dura mater. If the vertebral canal be opened from behind, so as to expose the spinal dura mater, and at the same time the great sciatic be stretched, a slight downward movement of the lower part of the dura mater is at once visible. By careful measurement, however, I find that it is not displaced more than an eighth of an inch. The dura mater possesses very little extensibility; and, further, the nerve-roots piercing it nearly opposite the intervertebral foramina, the stretching of the great sciatic rather tends to displace the dura mater laterally. Even a cursory examination will at once show that this cannot occur to any appreciable extent. If the dura mater be opened in the lumbar region, and the roots examined, it will be evident that the slight displacement produced by the stretching of the dura mater can have no appreciable effect in increasing their tension, and thus enabling them to act directly upon the spinal cord. The dura mater thus serves as a very efficient protector of the delicate spinal nerve-root; but, should it be torn, an extremely small force would suffice to detach them from the spinal cord. It therefore appears evident that stretching a nerve, such as the great sciatic, produces no direct mechanical action upon the spinal cord. Stretching a nerve less directly connected with the spinal cord, such as the median, is still less likely to affect directly the spinal cord; and, of course, there is no danger, in case of rupture, of its being detached from the cord. In the few experiments I have made upon this nerve, it always broke at the point where the force was applied.

The manner in which a beneficial effect is produced by the operation of nerve-stretching is very obscure. In some cases of sciatica, it may be due to the breaking up of adhesions, etc., pressing injuriously upon the nerve. In cases of central lesions, it probably acts upon the same general plan as other counter-irritants.

There is abundant clinical evidence to show, as one would expect, that the operation of nerve-stretching produces a powerful local action—not unfrequently being followed by temporary paralysis. Then, again, it produces a marked effect upon distant nerve centres, such as the respiratory and cardiac, as is shown in Langenbuch's cases. As a counter-irritant, it stimulates, not merely the nerve, but also its connecting trunk and branches.

In the operation, many surgeons attach special importance to the downward traction of the nerve—apparently believing that, by this means, they produce some direct mechanical action upon the spinal cord. This appears to me, as I have before stated, to be an erroneous idea; the nerve-fibres, as far up as the dura mater, being put

upon the stretch, but not the spinal nerve-roots beyond.

Dr. John Cavafy, in the *British Medical Journal* (December 17th, 1881, page 974), objects to the "nerve-stretcher" of M. Gillette, partly on the ground "that the extension must affect the peripheral and central portions of the nerve itself." If my view be correct, this is rather an advantage than otherwise, as a longer tract of nerve fibres is thus stimulated. Furthermore, by stretching a loop of the nerve, the force is divided between the peripheral and central ends—so that there is less liability to rupture. Traction upon the peripheral end of the nerve can be employed with more safety than upon the central end, the former being the stronger; and the nervous stimulation would probably be as great, if not greater.

Nitrite of Amyl in Hour-Glass Contraction of Uterus.

Dr. Fancourt Barnes records the following case in the *British Medical Journal*:—

I was called, at ten o'clock in the morning, on February 28th last, by one of the midwives of the Royal Maternity Charity, to a patient with retained placenta. On my arrival, I found that the patient, a secundipara, aged 22, had been delivered naturally, at three o'clock in the morning, of a living female child. The midwife stated that she sent for me because she had been unable to deliver the placenta. On examination, I found that the umbilical cord had been separated from the placenta. The external os uteri was quite dilated, as was the cervical cavity; but the os internum and the circle of muscular fibres above it, called Bandl's ring, the chief seat of hour-glass contraction, were firmly contracted, and only admitted a finger, by which the placenta could be felt in the uterus. I now learned that the midwife, hoping to accelerate the third stage of labor, had given the patient a dose of ergot as soon as the child was born. I found it impossible to get my hand into the uterus to deliver the placenta. Bearing in mind the remarkable power which nitrite of amyl possesses in relaxing tension in the blood vessels, I determined to test its action on the uterine spasm. The patient had three drops of the nitrite of amyl given her on a handkerchief, to inhale, by Mr. Lingard. During the inhalation, the ring of muscular fibres round the os internum, which had been so rigid as to be absolutely undilatable, steadily yielded, until I could pass the whole hand into the uterus and detach the placenta, which was universally adherent. There was no hemorrhage whatever, and the placenta itself presented a remarkably exsanguine appearance. On referring to the third edition of my father's work on "Obstetric Operations," I found the following: "We possess in ergot a great, a dangerous power of augmenting the force of the uterus. We want an agent endowed with the opposite effect, that will control and suppress uterine action. I consulted Dr. Richardson on this point. He tells me the desired power exists in the nitrite of amyl. Three minims of this added to one drachm of ether taken by inhalation is the form he recommends. It does not produce unconsciousness; but it is an anæsthetic as well as a sedative of muscular action. It is the antidote or opposite force to ergot. In it we have the desired 'epechontocic agent.'" In the case in question, the drug certainly acted admirably. It relaxed the irregular contraction of the uterus, and acted as a sedative and anæsthetic without producing unconsciousness. The case is also instructive as an example of the danger which may result from the administration of ergot before the expulsion of the placenta. The tetanic action was no doubt increased by the traction which had been made on the cord. It is well known that ergot, when given before the birth of the child, may cause its death. I believe this results from the blood being squeezed out of the placenta by the uterus. Although in cases of irregular contraction of the uterus that organ is firmly contracted, the contraction does not separate the placenta. On the contrary, in the cases I have seen, the placenta has been firmly adherent, as it was in this case. I am not aware that nitrite of amyl has been used to relax uterine spasm before. In it we possess, I think, a new and trustworthy addition to the resources at command for overcoming spasmodic or trismic contractions, which will not always yield to other remedies.

Septic Endocarditis.

The *Lancet* says that Professor Leyden, writing on this interesting subject in the *Zeitschrift für Klinische Medicin*, draws attention to the frequent resemblance of the temperature curve in this disease to that of intermittent fever, a resemblance that has been many times noted by others. He distinguishes, clinically, four groups of cases, as follows: The first group includes those cases in which the endocarditis forms part of a pyæmic or septic process. This is best known in connection with puerperal septicæmia, in which ulcerative (infectious parasitic) endocarditis is not infrequent. It is also sometimes met with in septicæmia and phlebitis following injuries. Leyden observed one such case complicated with abscess of the liver. In these cases of endocarditis, pyæmic or septic *par excellence*, the cardiac condition is part of a widespread septic process, and the rigors occurring in the disease may be symptomatic of the general sepsis, quite as much as of the endocarditis. In his second group he places those cases of endocarditis which are marked by a more or less intense and irregular pyrexia and erratic rigors. Traube has recorded such cases, so has Ditten. Volmer relates one in which typhoid symptoms ushered in the attack; then rigors occurred, and the diagnosis of endocarditis was made. Leyden remembers one such case in Traube's clinic, where a correct diagnosis of pulmonary valvular insufficiency was made, the endocarditis being accompanied by an irregular intermitting fever. The third and fourth groups comprise cases in which the temperature curve corresponds, more or less closely, to that of intermittent fever, with periods of paroxysmal exacerbation, alternating with apyrexia, sometimes for a short period, regularly quotidian and tertian in type. In the third group he places those cases in which the signs of car-

diac disease are ill-marked, or even in abeyance until near the close of life; while in the fourth he describes those cases where heart disease has been long established, the intermitting fever arising as a final complication. He gives details of four such cases, and ascribes the issue to the supervention of some septic influence, sometimes ascertainable, and confirmed after death by the presence of mycotic organisms in the vegetations, and secondary emboli. It may be added as an interesting historical fact that Leyden states that he has been unable to find records of these types of fatal endocarditis among older writers. This we believe is quite true, and in the face of the very striking clinical manifestations, is a little remarkable, and not wholly to be explained by the absence of thermometric observations. It is more than likely that some cases known to our forefathers as malignant ague really belonged to this class of disease, although even Morgagni, who faithfully describes post-mortem appearances in association with clinical facts, gives no case that would now bear this interpretation.

Reviews and Book Notices.

NOTES ON CURRENT MEDICAL LITERATURE.

——The Noblest Science—Annual Address at McKendree College, Lebanon, Ill., by Henry A. Castle.

——The Twenty-second Annual Announcement of the Bellevue Hospital Medical College has been received.

——We have received the Fifty-fourth Annual Announcement of the Medical College of the State of South Carolina.

——A Clinical Lecture on Idiocy and Imbecility, by Isaac N. Kerlin, M. D. This is a reprint from the Medical and Surgical Reporter.

——We have received the fourth biennial report of the State Board of Health of Maryland, a volume that reflects credit upon the energy and enterprise of the board.

——The annual commencement of the American Veterinary College of the University of the State of New York, No. 141 West 54th street, New York City, has been received.

——We have received the fifty-eighth annual announcement of the Jefferson Medical College of Philadelphia, which shows the institution to be in a most flourishing condition.

——We have received the report of the first commencement exercises of the Albany College of Pharmacy, containing the address delivered to the graduating class by Professor David Murray, PH. D., LL. D., as well as the second annual catalogue and announcement of the same institution.

——We have received the Biennial Report of the Board of Health of the Sandwich Islands, which contains much of interest, among other matters being an account of an official visit to the Leper settlement at Kalawao, Molokai.

——Refraction of the Eye, as distinguished from accommodation and estimated as an equivalent, from the index of refraction, by H. Culbertson, M.D., Assistant Surgeon, U. S. A., retired. This paper comes to us as a reprint from the Cincinnati *Lancet and Clinic*, May 27th, 1882.

——"Contributions to the Physiology and Pathology of the Nervous System." Part iv. From the private physiological laboratory of Isaac Ott, M.D. This pamphlet contains articles on the following subjects: The Physiology of the Spinal Cord: the Physiological Action of Glycerine; the Physiological Action of Hyoscyamia; the Cilio-spinal Centres; the Action of an Irritant.

——Papers and proceedings of the National Association for the Protection of the Insane and the Prevention of Insanity, at the stated meeting held in New York City, January 20th, 1882. This pamphlet, published by G. P. Putnam's Sons, New York City, is well worthy of perusal by all physicians, philanthropists, and all public spirited citizens, since it deals with one of the most perplexing social problems of the day.

BOOK NOTICES.

Clinical Lectures on Diseases of the Urinary Organs. By Sir Henry Thompson, Surgeon Extraordinary to His Majesty the King of the Belgians, etc. Sixth London edition. Illustrated with 73 wood engravings. pp. 175. Philadelphia: P. Blakiston, Son & Co. 1882. Price 75 cents.

Sir Henry Thompson stands so preëminent in all that relates to diseases of the urinary organs that one never hears his name mentioned but his specialty comes prominently up into the mind. There is probably no man living in the world whose utterances and teachings in this particular branch of surgery are so well worth studying. His experience has been incalculably great and extensive. Every physician must know something about the morbid conditions of these important organs, and he cannot do better than to learn from the well-stocked mind of Sir Henry Thompson. By using less expensive paper and binding the book in paper, the publishers have been enabled to offer all this valuable material at a very low price.

THE

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D. G. BRINTON, M.D., EDITOR.

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THE DUTY OF RAILROADS TO PROVIDE AGAINST ACCIDENTS.

The sad accident which recently occurred near Long Branch, by the separation of the rails, and the falling of the train into a shallow river, was attended by scenes which again illustrated the necessity of railroads forming a regular staff of surgeons, and providing them with the means of attending immediately to fractures and similar injuries.

Every road should have a set of splints, bandages, lint, chloroform, and other materials required in the first attention to wounds, placed in charge of the station agent, at every important station. A surgeon-in chief and division surgeons should be appointed, prepared to come on any emergency, and some of the employees of the road should be instructed in the principles of ambulance duties, as of lifting and carrying wounded men, applying bandages, etc.

Even where an accident occurs close to a great city these precautions would be wise, and on the long lines which traverse the less thickly settled portions of our country, their observance should be enforced by law.

DR. JOHN L. ATLEE.

The venerable and celebrated Pennsylvania physician, who has just been honored by a unanimous election as President of the American Medical Association, is a *man* among men, a true scholar, gentleman, physician.

Dr. JOHN LIGHT ATLEE was born in Lancaster, Pa., November 2d, 1799. His father was Col. WILLIAM PITT ATLEE, and his grandfather the Hon. WILLIAM AUGUSTUS ATLEE. He studied medicine with SAMUEL HUMES, M. D., commencing in 1815, and graduated from the University of Pennsylvania in April, 1820. He then began practice in Lancaster, where he yet remains. He was active in the organization of the Lancaster City and County Medical Societies, and was twice elected president. He was one of the originators of the State Medical Society, in 1848; in 1857 he was elected president, and was elected one of the vice-presidents of the American Medical Association in 1868. At the union of Franklin and Marshall Colleges he became Professor of Anatomy and Physiology, and so continued until 1869. He has always taken a lively interest in the cause of education, and having been appointed a school director in 1822, he was for more than forty years an active and useful member of the board. He is a Trustee of Franklin and Marshall College, as well as of the Bishop Bowman Church Home, of Lancaster. He has been a contributor to the *American Journal of the Medical Sciences*, as well as to many others. He revived the operation of ovariotomy in 1843, and was the first to successfully remove both ovaries at one operation. He was married, March 12th, 1822, to SARAH H., eldest daughter of the late Hon. WALTER FRANKLIN, President Judge of the Courts of Lancaster and York Counties. He has two sons physicians, one of them the well-known ovariotomist, Dr. WALTER F. ATLEE, of Philadelphia. Dr. ATLEE's exceptional charac-

ter, long experience and well-known integrity eminently fit him for the position to which he has been elected.

Notes and Comments.

Spina Bifida Cured by Injections of Iodine.

Mr. A. Pearce Gould reported the following case to the Clinical Society of London (*British Medical Journal*): A boy, aged six months, was brought into the hospital, with a tumor over the lumbar vertebra about the size and shape of a large tomato. It was translucent, fluctuating, sessile, covered with healthy skin. The child was otherwise perfectly healthy. The tumor became tense when the child cried, and pressure on it caused fullness of the anterior fontanelle. One ounce of fluid was drawn off, and one drachm of Morton's iodo-glycerine solution injected. This producing no effect, the operation was repeated a week later, when half a drachm of the same solution was injected. After this the tumor became solid and shrank. The fluid removed was analyzed, and found not to contain even a trace of sugar, showing that it was arachnoid and not cerebro-spinal fluid. During the discussion that followed, it seemed to be the sense of the Society that while this was the best treatment known at present, for spina bifida, the successful cases were very few and far between. The President, in conclusion, stated that he believed that Dr. Morton now thought it advisable not to draw off the fluid from the spina bifida, but merely to inject the fluid, that being quite sufficient for the treatment of the case.

Prostatic Obstructions.

Dr. Reginald Harrison recently read a paper before the Medical Society of London, in which he advocated the wisdom of early treatment of prostatic obstruction. He believes that at least 33 per cent. of the men who pass 55 years of age, sooner or later, have enlargement of the prostate. He deprecated the idea of waiting until the prostate became so enlarged as to interfere with the passage of urine. He denied the generally taught idea that this gland is so very sensitive, and so resents mechanical interference; it will bear as much manipulation without resultant evil as any part of the body. He uses gum-elastic instruments, two to four inches longer in the stem than usual, with an expanded portion an inch from the tip, which is made to enter the bladder. Thus the prostatic urethra is subjected to stretching, both upon the introduction and the withdrawal of the instrument. If this dilatation is not carried out too rapidly, no irritation will ensue. He closed his remarks by urging, strongly, this early treatment, which, when properly and carefully carried out, will do much to prevent subsequent very serious trouble.

Epithelioma Removed by Scraping.

At a recent meeting of the Clinical Society of London (*Medical Times and Gazette*), Mr. T. Holmes related a case of a young man suffering from an ulcer of the leg, which presented all the appearances of epithelioma, both to the naked eye and under the microscope. It was very large, almost isolating the tendo-achillis, and was accompanied by the swelling of the inguinal glands. Mr. Holmes considered that in former times these symptoms would have been considered to warrant amputation. In this case he removed all the epitheliomatous tissue, and then made a free application of the actual cautery. Sound cicatrization ensued and the enlarged glands subsided entirely. Many other gentlemen related their experience in this matter, which was all corroborative of Mr. Holmes', who closed by saying, he suspected that many growths originally local tended to become epitheliomatous and constitutional in type. His case certainly corresponded to the ordinary descriptions of epithelioma, and he would urge that such cases, if early treated, might result in the extirpation of a disease rapidly becoming malignant.

Neuralgia.

Dr. Reginald G. Alexander, writing in the *Lancet*, makes the statement that it is now a well established fact that neuralgia is a disease arising from debility, and since it is very often mistaken for rheumatism, gout, spinal irritation, etc., he gives the following diagnostic points by which it can be differentiated: 1. Neuralgia occurs when general debility exists, is increased by fatigue, mental or bodily, but is relieved by food, and sometimes by stimulants. 2. The pain, which is sudden, darting and excruciating, exhibits remarkable intermissions, especially in the early stages of the complaint, and the constitutional disturbance is slight (temp., pulse, etc., frequently normal). 3. It is usually unilateral. 4. As the disease advances, tender spots are formed in the course of the affected nerves.

Realizing that debility plays so important a part in this disease, he says, as would be supposed, that the treatment must be directed in every case toward improving the general health. Pure air night and day, great cleanliness and sponging with sea salt and water. Hypodermic injections of morphia give immediate relief and are really curative, since by allaying pain they allow the tonic measures to be carried out.

Diet in Asthma and Bronchitis.

Dr. John C. Thorowgood calls attention, in the *Medical Press and Circular*, to the importance of carefully regulating the diet in cases of asthma and bronchitis. He describes how an overly distended stomach, by pressing on the diaphragm, may offer a mechanical impediment to free respiration, and may also interfere with the proper action of the heart. He mentions a gentleman who gained a great reputation for his ability to cure bronchitis and bronchial asthma by diet, and says that the great secret of this diet cure was judiciously starving the patient for a time. The stomach may be, to a certain extent, sluggish, so that it will not at the time feel any inconvenience from the excess of food forced upon it, but in an hour or two dyspepsia in some form will indicate the outrage that has been perpetrated. The food used should be nutritious, without being bulky. A lightly boiled egg, the wing of a chicken, or some fish, with one cup of tea, coffee or cocoa, and toast, will form three alternatives of breakfast fare. Soups should be avoided at dinner, because they tend to distend the stomach. Vegetables should be used sparingly. Malt liquors, pastry, cheese and dessert should be rigidly eschewed, and for drink, claret, with water, or lemon juice and water, may be allowed. Effervescing drinks of all kinds are not to be commended. By this arrangement of diet we keep up nutrition, while we avoid overloading the stomach, and so oppressing the diaphragm. The heart and lungs are enabled to act freely, and the danger of sudden stoppage of the first named organ is put at a distance.

Hereditary and Non-Hereditary Phthisis.

Dr. Reginald E. Thompson, in the course of a lecture on this subject, says (*Lancet*) that after examining a very large number of cases he finds the proportion of hereditary to non-hereditary cases to be 36 per cent., or, he says, the relative number may be roughly put as one hereditary to two non hereditary.

The following numbers represent the relative proportions in which the several members of the families were implicated in the disease:—

Father alone	168	
Ditto, with one or more brothers	34	252
Ditto, with brothers and sisters	50	
Mother alone	158	
Ditto, with one or more brothers	25	241
Ditto, with brothers and sisters	58	
Father and mother	40	
Ditto, with one or more brothers	8	68
Ditto, with brothers and sisters	20	
Uncle	47	
Aunt	37	
Grandfather	7	439
Grandmother	5	
Sisters, with one or more brothers	152	
Brothers only	191	
Total		1000

Self-Mutilation.

Dr. Thomas Partridge thus writes to the *British Medical Journal*:—

At the present time, when the subject of self-mutilation is of so much interest, the following case may be worth notice, not, perhaps, from a medico-legal point of view, as the one recently under public notice, but as showing that some persons will inflict severe pain and injure themselves, at the risk of their own lives, from various motives.

Several years ago, when assistant-surgeon in a foreign naval service, my ship was stationed for three weeks in an extreme northern port of America. During our stay, several men contracted syphilis from the half-breeds (Indian and French). Three weeks or a month afterwards, when we had returned to our depôt, I was summoned to the surgical room to see a stoker, said to be dying. On arrival, I found him pallid, with a weak pulse, and very exhausted. On removal to the sick bay, I noticed a discoloration of the trousers about the thighs; and, on examination, detected bleeding from the penis. On retracting the prepuce, a jet of red blood spurted out. Calling in the assistance of my chief, we succeeded in stopping the hemorrhage by pressure and styptics, but, as may be imagined, not without some trouble. It transpired that the poor fellow, an Irishman, of low mental type, had a chancre. He thought to get rid of it by incision, and in doing so, wounded the dorsalis penis artery. The pocket-knife with which he cut himself was in his pocket, one blade having a smear of blood on it. Had a little longer time elapsed before he was noticed, death would have ensued, perhaps leading to various sur-

mises; and as he was disliked by his mates, this might possibly have caused unjust suspicions against one or other of them.

The Growth of Bacteria.

In the *Medical Press and Circular*, Dr. David Goyder says that a blood heat is most favorable for the growth of bacteria. Cold to the freezing point does not kill, nor heat to 250° F. destroy the life of spores, but both arrest their development. Compressed air and oxygen at first increase, but ultimately destroy spores and bacteria, and prevent development. Ozone at once destroys them. Pure hydrogen at first excites and then kills. Carbonic acid paralyzes but does not prevent their resuscitation by oxygen. Boracic acid kills them, and carbolic acid to $\frac{1}{10}$ per cent. prevents all development. Cohn has calculated that a single bacterial rod, by growth and division, will produce in two days of forty-eight hours the enormous number of 281,500,000,000, and at the same rate of development it would fill the ocean in five days; but, of course, other telluric influences prevent this.

Special Reports.

No. VI.—MICRO-GERMS.

BY DR. W. F. MUHLENBERG,
Of Reading, Pa.

(*Concluded from Vol.* XLVI, *p.* 615.)

In judging of the character of diseases produced by inoculation with the so-called specific germs, we must be thoroughly convinced that the disease produced is the one suspected, and not septicæmia or a local tuberculosis.* Animals must be proved to be able to take a certain disease, which resembles in its symptomatology that affecting man, and everything tending to interfere with or obscure a precise diagnosis must be excluded. Animals vary much more in their temperatures than man, and the effect of slight injuries, or even fright (particularly in rabbits) is very marked.†

If an organism be generated successively, in any medium, for a long period, it must become habituated to it; and, on its transference to another medium will require time to re-habituate itself. Its virulence may be interrupted by cultivation in the body (inoculation).

The supposed conversion of bacilli may be due to the fact that, as two media are ordinarily used, in the first the one organism was too subordinate to be noticed, whereas the second medium, suiting its necessities much better, may cause it to grow so vigorously as to crowd out and displace the bacillus predominant in the first medium. Pasteur's solution becomes milky, Cohn's moderately cloudy, and fresh urine slightly tinged, while a 2 per cent. solution of carbolic acid shows no effect, if, under like conditions, one drop of putrid fluid be added to each. The bacillus subtilis grows in its original medium to double its length, without changing its diameter; and then breaks into two rods, but, on the addition of sugar or serum to the fluid, forms filaments, instead of dividing. The development of germs appears to depend on the fluid and mode of culture used (31). In one case no permanent spores are found, in another no zoogloœa mass. The micrococcus prodigiosus, grown on potatoes, is crowded out by bacterium, like the bacterium termo. Blue cocci. cultivated in Pasteur's solution, become colorless, but on admixture with pus, become blue, while, planted on potatoes, become red.

Septicæmia in mice (28) is always produced by the smallest drop of a culture fluid containing the micrococci, while in rabbits they produce an erysipelatous gangrene of the ear, with colonies of rosary-like micrococci, which can be cultivated in field mice, although they are insusceptible to the bacillus anthracis. Klebs, (32) one of the great authorities on mycology, considers the bacillus anthracis the cause of Charbon, and the bacillus malariæ, bacillus typhi exanthematici, and the bacillus typhi abdominalis,* the best examples of so-called

* Tuberculosis is now generally considered to be inoculable in animals; even in the shape of phthisical pus (30), and perhaps, as Rindfleisch suggests, the reason why many previous attempts at inoculation have failed, is because we are all hereditarily habituated more or less to the poison; but, even if micrococci are the vehicles of transportation, it is possible for them to be carried off by the blood sufficiently rapidly to do no harm.

† In the septicæmia of rabbits, immediately after inoculation, there is a rise of temperature of 2°-3° C., while, before death, it falls below the normal standard. There is also loss of appetite, debility, diffuse cellulitis, and occasionally a purulent collection near the puncture, while the subcutaneous connective tissue is full of bloody serum and micrococci. In judging of the bacillus malariæ, three factors were considered necessary to prove intermittent fever in rabbits.

1st. Distinct, intermittent feverish attacks.

2d. Enlargement of the spleen, firm, but not soft, as in septic spleen.

3d. Absence of marked diminution of the animal's weight, and the existence of black pigment in the spleen, blood and marrow (due probably to a liberation of iron from the hæmoglobin), as well as, *post-mortem*, absence of pus.

* The bacillus typhi (33) is found mainly in the enlarged lymphatics and spleen, while the bacillus of tubercular inflammation is found in the intestines. This same bacillus (34) has been found in drinking water, and appears to produce the same disease in rabbits.

specific germs, and views them as pathognomonic. While all acute abscesses (25) are full of micrococci, none are found in cold abscesses. There is only a serous discharge, where no micrococci are present in wounds. Pathogenic bacteria must enter the system in certain numbers to survive, or become virulent, for, if (35) the vitality of a rabbit is lowered by the administration of phosphorus, micrococci, which under other circumstances, do no harm, increase so rapidly as to be fatal. It is believed, (36) that a septic nephritis is frequently produced by the direct entrance of micrococci into the kidneys.

In the neighborhood where these colonies of micrococci are found, a virulent inflammatory action can be observed, while the signs of a diffused nephritis are present in the parenchyma. The micrococci act as emboli, and are found in the small intertubular arteries. Different facts, lately determined, render it probable that germs can traverse the glomeruli of the kidneys. The filtration of fat (37), and of bacilli anthracis (38), from the blood has been almost conclusively established; and, in addition, it has been shown (39) that the urine of healthy persons, if the access of air is prevented, contains no germs nor bacteria, remains acid, and does not undergo decomposition; while, on the other hand, (40) in infectious diseases, like scarlatina and typhoid fever, they are often found in great quantities in the urine.* In places robbed of their epithelium, (14) micrococci quickly enter the lymphatics and blood vessels, and are found in contact with the blood, pus, and plasma-cells, and (as is seen after injection of cinnabar) appear to enter bodily into them, destroy the membrane, and are excreted by the kidneys, or deposited on some mucous surface. Invading the body as they do, they either undergo the usual harmless transformation and perish, or, by some accident favoring their growth, like the effect of various culture fluids upon them, more readily transmit their species, and, when produced in immense quantities, by robbing the tissue underlying them, or some element necessary to their existence, bring on various disorders.

The fact of the presence of germs in various parts of the body, and various excretions and secretions, furnishes as yet no reliable criterion of their previous action on the organism. The question that always presents itself is, whether we can recognize with certainty, from these residual organisms, the prior existence of some definite disease. It has been found that in frogs, dying of septicæmia (Wassilieff, Strasburg Institute) a development of germs takes place *post-mortem*; while, in frogs not dying of septicæmia, none can be discovered, *ante, aut post-mortem*; yet sections of cadavers of dogs (Billroth *l. c.*) made immediately after death, and plunged into mercury or paraffin, have always been found full of germs. Saliva (43) injected into rabbits has produced septicæmia, but, on cultivation, it has been found due to germs. One general view seems to prevail, that septic affections arise without the presence of germs, and are produced by a substance formed by putrefaction, to which poisonous properties are ascribed. This view appears to be supported by the fact that, frequently, no considerable quantity of germs are found in the organism; but is untenable, because, as in relapsing and malarial fevers, they may disappear temporarily; and rarely all the fluids or organs of the body are examined; and by filtering such a septic fluid we can inoculate it with perfect safety. Whereas the separated germs, cultivated even to the thirtieth or sixtieth generation in harmless fluids, and representing only a billionth part of any chemical or bioplastic series, always produce disease. The apparent conversions of harmless germs into virulent ones, proves also there is no chemical poison. Many authorities say surgical injuries of various kinds, without external lesions, have had as a consequence septicæmia, and that although germs have been found in the purulent or muco-purulent secretions, they are either a post-mortem change, or a part of a process not injurious to the system. Some experiments appear to prove that the germs admitted to be omnipresent in the body, perhaps, after such accidents, find a nidus for their increase and peculiar action in the disorganized tissues. Ordinarily (44) after the subcutaneous castration of rams, a simple withering or calcification of the testicle ensues, but if, before castration, an injection of a germ-containing fluid is made into the blood, gangrene of the testicle is invariably produced, except when all the vessels leading to the testicle have been ligated. The

* Some interesting (41) cases of nephritic mycoses have been recently described, in which, post-mortem, were found tube-casts of a particular variety, so called germ-casts (Pilz-cylinder).

The tubes were found robbed of their epithelium, and colonies of micrococci were seen blocking up the tubules. These casts appeared to consist of a homogeneous vitreous basal-membrane, covered with micrococci. They were not produced by septicæmia, nor by ascent from the bladder. The symptoms of the disease were those of meningitis, but post-mortem, no lesions were found in the brain.

An acute nephritis (19) is often present with inflammatory affections of the tonsil, in which micrococci are found in great quantities in the urine. As one author says (42), it is not difficult to conceive that a mycelium-like growth of beaded-filaments, like micrococci, might act destructively on the lining membrane of the urinary passages.

germs in the blood, consequently, seem to be few, and not to increase without some stimulus. In the mouth are found, normally, the leptothrix pussilla, the leptothrix buccalis, the spirochæte dentium, the penecillium microsporinum, and a micrococcus which is colored blue by iodine. Normally (45) in the intestinal contents are found, micrococci, the bacterium termo, the bacillus subtilis, and saccharo mycetes, all stained yellow or brown by iodine, and the clestridium butyricum (Pasteur's vibrion butyrique) and a smaller variety, stained blue by iodine.

Iodoform (46), used now so largely as an antiseptic, exercises a constant antagonizing influence upon the germination of bacteria, and, if used in quantity, prevents the origin of putrefactive processes.

Sunlight seems to have some slight effect upon the growth of germs, as turbidity (47) did not take place in culture tubes exposed to its influence until the third day, whereas, ordinarily, it was noticeable on the first day. The following table gives the antiseptic as well as aseptic action of various bodies on cultivated flesh-extract solutions (48):—

Aseptic.		*Antiseptic.*
1 : 25250	Corrosive sublimate,	1 : 5805
1 : 30208	Chlorine,	1 : 22768
1 : 11135	Hypochlorite of calcium,	1 : 3720
1 : 6448	Sulphurous acid,	1 : 2009
1 : 6308	Bromine,	1 : 2550
1 : 5704	Sulphuric acid,	1 : 2020
1 : 5020	Iodine,	1 : 1548
1 : 4268	Acetate of alumina,	1 : 427
1 : 3353	Oil of mustard,	1 : 591
1 : 2867	Benzoic acid,	1 : 410
1 : 2860	Borosalicylate of soda,	1 : 72
1 : 2005	Picric acid,	1 : 1001
1 : 1340	Thymol,	1 : 109
1 : 1003	Salicylic acid,	1 : 60
1 : 1001	Permanganate of potash,	1 : 150
1 : 669	Carbolic acid,	1 : 22
1 : 60	Chloroform,	1 : 112
1 : 62	Borax,	1 : 48
1 : 21	Alcohol,	1 : 4
1 : 14	Eucalyptol,	1 : 116

The following table, by another investigator, shows the antiseptic action of various bodies on the germination of bacteria (49):—

Corrosive sublimate	1 : 20000
Thymol	1 : 2000
Sodium benzoate	1 : 2000
Creasote	1 : 1000
Ol. thym.	1 : 1000
Oil of caraway	1 : 1000
Benzoic acid	1 : 1000
Methyl salicylic acid	1 : 1000
Salicylic acid	1 : 666
Carbolic acid	1 : 200
Quinia	1 : 200
Sulphuric acid	1 : 150
Boracic acid	1 : 133
Sulphate of copper	1 : 133
Hydrochloric acid	1 : 75
Sulphate of zinc	1 : 50
Alcohol	1 : 50
Chlorine	1 : 25000
Iodine	1 : 5000 (In the molten liquid.)
Bromine	1 : 3333
Sulphurous acid	1 : 666
Benzoic acid	1 : 250

Dr. Sternberg (50), finding that the injection of some blood or serum from the subcutaneous connective tissue of a rabbit, killed by septicæmia, invariably produced death in rabbits in from twenty-four to forty-eight hours, thinks it is manifest that a negative result, after treatment with a disinfectant, is proof of its power to destroy the potentiality of the injected material. He finds that chlorine, nitrous acid and sulphurous acid gases are reliable disinfectants, in the proportion of one volume to one hundred volumes of air; and that the following bodies, added to one hundred parts of such a fluid, act as preventives:—

Iodine	.2	Salicylic acid	1.25
Chromic acid	.1	Zinc chloride	2.5
Ferric sulphate	.12	Caustic potash	1.
Cupric sulphate	.25	Iron alum	1.
Thymol, in alcohol	.25	Zinc sulphate	1.25
Caustic soda	.25	Potass. sulphuret.	2.
Nitric acid	.25	Tannic acid	1.
Sulphuric acid	.5	Boracic acid	2.
Iron sesq. chloride	.5	Potass. permang.	2.
Sodium hyposulph	.5	Borax	2.5
Hydrochloric acid	.5	Glycerine	12.5
Carbolic acid*	1.25	Alcohol, 95 p.c.	25.

Onimus (52) found that alcohol, iodine and sulphuric acid rendered septicæmic blood harmless, but neither quinia nor 45° C. were of any avail.

Davaine (53) found that $\frac{1}{10000}$ of a drop of blood from splenic fever cases, on inoculation, caused splenic fever, but that this was nullified by heating it to 55° C. for five minutes; and that, after the addition of one part of chromic acid to 7000 parts of diluted splenic fever blood, the animal died, while 1 : 5000 parts was sufficient to save its life. His experiments showed that animals died or survived by the use of the following proportions of antiseptics:—

Killed.	*Substance.*	*Saved.*
1 : 5000	Hydrochloric acid,	1 : 3000
1 : 300	Ammonia,	1 : 150
1 : 200	Silicate of soda,	1 : 150
1 : 500	Caustic potash,	1 : 375
1 : 200	Wine vinegar,	1 : 150
1 : 2000	Permang. of potash,	1 : 1250
1 : 8000	Sulphuric acid,	1 : 5000

And subsequently (54), when he mixed one part of splenic fever blood with 1000 parts of

* It requires the one-twentieth part of carbolic acid to prevent the growth of germs in beef extract (51).

water, and then one part of this mixture with ten of alcohol, he found it harmless.

Hatton (55) proved that phenol, alcohol and permanganate of potash were destructive to germs; and also cyanogen, until decomposed into oxalate of ammonia. While one hour's exposure (56) to dry heat, at 60° C., kills the bacteria of putrefaction, 20° C. does not, and it requires 75° C. (57) to kill the micrococcus prodigiosus.

Water in excess is sufficient to prevent the rapid growth of germs; but the most interesting fact is that the most powerful antiseptics and aseptics known are those chemical bodies produced by the disorganization of the germs themselves. The fact that carbolic acid, one of the reliable antiseptics, is the product of their decomposition, shows that we know, as yet, very little about their life, history, or the proper modes of developing or preventing their growth. Wernich (4) gives the antiseptic action of these aromatic bodies, as shown by the hindrance of the development of bacteria in 100 gm. of Pasteur's fluid, as follows: Skatol .05, phenylpropionic acid .1, indol 1, cresol .2, phenylacetic acid .25, phenol .5.

The diversity of action of antiseptics as deduced by different authorities, is undoubtedly due to the fact that various germs were experimented with, and that, in some cases, the bacteria, more readily antagonized, took the place of permanent spores. En résumé.

The bacteria of decomposition (58) appear to be the active agents in what is known as blood-poisoning, as has been shown by the investigations of Lister and Koch. It is affirmed that (59) "the micrococci of diphtheria may act upon the exudation of the trachea as the yeast plant acts upon sugar, and cause the production of a septic poison, which differs from that of ordinary putrefaction, and when absorbed, bears such relations to the system as to cause diphtheria;" and that (8) "they do not differ, as far as observed, from the micrococci of furred tongue, except in their tendency to grow in culture fluids; while their rapidity of growth is in direct proportion to the malignancy of the case." Dr. Sternberg (60), our great authority in this country, after advancing some valid reasons to show that as yet the proof of malaria being caused by the bacillus malariæ (Klebs and Tommasi-Crudeli) is unsatisfactory, says: "While, however, the evidence is not satisfactory, there is nothing in my researches to indicate that the so-called bacillus malariæ, or some other of the micro-organisms associated with it, is not the active agent in the causation of malarial fever in man; on the other hand, there are many circumstances in favor of the hypothesis that the etiology of this fever is connected, directly or indirectly, with the presence of these organisms or their germs in the air and water of malarial localities." Many authorities maintain that the micrococci of septicæmia are only the carriers of a poison, capable of producing the disease, and among them, Billroth (*l. c.*); "are only injections, after they themselves have been injected."

Others assume that the micrococci give rise to a chemical poison, which acts as a necrotic to the tissues, and which may be eventually obtained from the germs themselves, while others think there is a direct perforation of the tissues by the germs, and that they can wander into the blood corpuscles (Klebs and Hueter); others think that the bacteria, ordinarily present acquire power to change their locality, or mode of development.* It is believed (22) that during inflammation, processes arise in the tissues, which increase their resisting power to the germs, and, in many cases, prevent the natural modes of cure of infectious diseases. It is manifest (62) that the human body is used, in many places, as a nutrient substance by these organisms. The dependence of these organisms on the culture-media used, and the fact that micro-organisms, after cultivation, can be transplanted from one animal to another, while their life history is obscure, renders it probable that many diseases are caused by them.

The following diseases are common to men and animals (63): Glanders and farcy in horses; rabies in dogs and cats (also in skunks); anthrax in all domestic animals; tuberculosis in all animals; Asiatic cholera in all animals; milk sickness in cows; smallpox in chickens, pigeons.†

The germ diseases are also found in lower orders of animals, such as (65) the mucor-melitiphorus in bees (which are, as is well known, easily killed by yeast, a saccharomycete); petrine, flacherii and muscardine in silk-worms; the well known autumnal epidemic of house flies; and different varieties among fishes and birds. Pasteur believes that the germs of anthrax are conveyed to the surface of the earth, from the offal-

* Typhoid fever, *e. g.* in common with all intestinal mycoses, has the properties of making its cause affect the system, by its action on the intestinal canal. The bacteria found in the glandular apparatus are part of the metamorphosis of the bacillus subtilis, abundantly present in the large intestine. The organisms, living purely saprophytically in the colomi fæces, acquire the power to get into higher portions of the intestines, there accommodate themselves, and become invasive (61).

† Also in cattle, sheep, pigs, dogs, and apes, (64).

pits, by earthworms, but Koch has shown that they are very poor "messagers des germes." Our common insects, such as flies and mosquitoes, (Filaria-sickness), are now supposed to be carriers, as, contrary to the general opinion, the air is not crowded with germs as much as is supposed.

The portion of the system invaded seems to depend on the organisms, and, accordingly, various authors consider the respiratory tract (22), the intestinal tract (66), the tonsils (62), and skin as the favored localities of invasion.

These infectious matters appear to get in the air in dust form, more particularly as spores, but only after thorough drying.

Composed, as they are (67), of molecules of albumen and grape sugar, which ordinarily cannot be evaporated from a watery solution, it is hardly probable that ferments can be conveyed from any watery solution by currents of air.

The dried masses, or the residue of a dried fluid, transformed into dust by mechanical action of some kind, are subsequently wafted in all directions by currents of air. The presence of a gelatinous sort of material (especially in the case of the permanent spores) appears to cement the germs very firmly to the objects to which they were originally adherent.

It appears (68), from some experiments, that very strong currents of air cannot detach them from compact substances, as wood, iron and glass, while it requires only a weak current to free them from substances of an opposite or porous character, as cotton wool, silk, and the like. Currents of air, likewise, passing over or even through fluids, do not carry away with them any germs, unless the fluids become covered with foam. Some authors (67) even go so far as to say that moisture, and even dirt in houses, may assist in the purification of the atmosphere, by retaining the germs in contact with them.

In accordance with these facts, national hygiene would suggest (62) that no porous object, no bed nor mattress, should be cleansed in the bedroom. Wet cloths are best for removing dirt and germs from the walls and furniture. The safest means, also, for the removal of germs from the floor, or other surfaces to which they are adherent, is frequent and continued wiping of them with wet cloths; and with our present knowledge, it is far better to prevent the conveyance of a poison to the system than to neutralize it afterward.

Patients suffering from infectious diseases should have their own utensils, and not use a common water closet; not chiefly because the fæces may be a subsequent cause of infection, but to prevent the immediate deposit of germs on the rims of the seats. All vessels in use in a sick room should be washed out with a solution of at least five per cent. of carbolic acid. A plentiful stream of water through the water closets will carry away the germs; and the fæces can, with advantage, be buried or burned.

The urine should also be disinfected, and after sickness, all worthless matter burned, and valuable materials, where possible, disinfected by heat. Corrosive sublimate (and possibly calomel) is thought to be our most reliable internal antiseptic. Patients, where possible, should be washed with carbolic oil and water. What may be accomplished in future by a process of vaccination or attenuation of the hypothetical specific germs, is still problematical; but our present knowledge of germs warrants us in laboring in that direction, with the confident hope of securing some valuable humanitarian results. Single and very simple elementary principles in every department of science have led, through the persevering efforts of thoughtful individuals, to the most extended and beneficial consequences in human society. The telephone and electric light, in another department of pursuit, are now producing immense changes in the condition of society and the communication of thought; and the field of medicine is open in a similar way to reward the patient student of its mysteries with discoveries intimately connected with human happiness. As Franklin's simple experiment with the kite has led to the utilizing of the lightning of heaven for the benefit of humanity, so we may expect some future physician, by his labors, to make the very diseases of the human system contributory to their amelioration and cure.

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(7) Nägeli amd Schwendener (Das Mikroskop) also N. die Niederen Pilze.
(8) Wood and Formad (Nat. Board of Health Bulletin Supplement, No. 17).
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(10) Koch (Cohn's Beiträge Zur. Biol. der Pflanz, Vol. 2, No. 3).
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(14) Oertel (Ætiolog. der Infectionskrank).
(15) Talamon (cited in British Med. Journal, March 5th, 1881).

(16) Klebs (Archiv f. Exp. Patholog., Vol. XII, No. 2).
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(25) Ogston (British Med. Journal, March 12th, 1881).
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(31) Bucholtz (Archiv f. Exp. Patholog., VII).
(32) Klebs (Address before International Medical Congress).
(33) Eberth (Centralblatt f. d. Med. Wissen., Sept. 10th, 1881).
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(35) Cheyne (Trans. Patholog., Soc. of London, Vol. XXX).
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(37) Scriba (Deutsch Zeits. f. Chirurg., XII).
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(39) Leube (Frerichs and Leyden's Zeitschr., Vol. 3, No. 2).
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(41) Litten (Frerichs and Leyden's Zeitschr., Vol. IV, 1-2).
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(52) Onimus. (Bull. de l' Acad. de Med. No. 36).
(53) Davaine. (Comp. Rendu. Vol. 72, No. 13).
(54) Davaine. (Comp. Rend. 34).
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(61) Wernich. (Frerichs and Leyden's Zeitschrift, Vol. IV. Nos. 1-2).
(62) Wernich. (Grundriss der Desinfectionslehre).
(63) Law. (Nat. Board of Health Bulletin, July 24, 1880).
(64) Bollinger. (Sammlung, No. 116)
(65) Bollinger. (Ætiology der Infectionskrankheiten).
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—Drs. Fordyce Barker, Austin Flint and John G. Adams, have been appointed delegates from the New York Academy of Medicine to the International Congress of Hygiene, which meets in Geneva, Switzerland, from the 4th to the 9th of September.

CORRESPONDENCE.

Inception of International Medical Congress of 1876.

ED. MED. AND SURG. REPORTER:—

The enclosed copy of letter concerning the origin and purposes of the late International Medical Congress, which was assembled in Philadelphia, in 1876, may interest your readers, and furnish reflection and data to those who may, in future years, seek to promote an object of the kind.

Marshall, Va. FRED. HORNER, M.D.

[*Copy*].

UNITED STATES CENTENNIAL BOARD OF FINANCE,
904 WALNUT STREET,
PHILADELPHIA, June 18, 1873.

FREDERICK HORNER, M.D., (*retired*) *Surgeon, United States Navy.*

DEAR SIR: I am very much obliged by your letter of the 11th inst, giving me an account of the action taken lately at St. Louis, by the American Medical Association, on the subject of the great Centennial Celebration of 1876.

At your request, I now, in addition to the verbal communications I have had the pleasure of making to you, will state how I think the medical profession in the United States may contribute to the honor and success of the Centennial.

First, by causing to be prepared a full history of the data of medical science in the United States in the year 1776, and to trace the progress during the century, marking the great discoveries and improvements that have been made in it, the introduction of new remedies, the changes that have taken place in the treatment of diseases, the forms of surgical instruments then in use, and the changes therein that have brought them to the present forms. Next, the establishment of the institutions, universities, colleges, schools, etc., in the order, chronologically, of their establishment, their location, and brief notices of their growth and present condition. This, mainly literary work, might be amplified to any extent needed for the presentation of a complete history of medicine and surgery in the United States.

Secondly, by arranging with the U. S. Centennial Commission for space in the Exhibition building for an anatomical and pathological museum, in which might be displayed all such objects as could, with propriety, be presented for popular inspection, and to such a museum might be added private rooms for collections that would only be appropriate for special inspection and study by professional men and students. Such a museum should also contain full specimens of the surgical instruments, bandages, etc., used in old times, and others of the intermediate and progressive periods, finally presenting those in use now.

Thirdly, the coöperation of the medical profession is earnestly desired in aiding our plan, and through the instrumentality of the state, county and city medical societies, such coöperation may be readily and effectually had.

Respectfully yours,

FRED. FRALEY, *Secretary.*

Salicylic Acid as a Remedy for Corns.

ED. MED. AND SURG. REPORTER:—

I wish to call the attention of our profession to Mr. Gezou's remedy for corns, which you published in your journal, July 17, 1880, p. 63. In the "Transactions of the Medical Society of Pennsylvania," for the year 1876, p. 283, I reported the use of salicylic acid in the treatment of corns. I used it first in the treatment of soft corns, but very soon found it would remove hard ones as well. I applied it on cotton, and I can testify to the certainty of the effects of salicylic acid in the treatment of these painful excrescences on the toes.

It occurred to me, when I read Mr. Gezou's prescription, that the collodion which he employed to dissolve the acid would keep it well applied to the corn, and I have used it as prepared by him, in a great many cases, since July, 1880, and I can say with constant success. I have had a preference expressed in favor of the application of the acid on cotton, but I have, in almost all of my cases, used Mr. Gezou's preparation since July, 1880.

The collodion, as already mentioned, fixes the acid on the diseased part, and gives speedy relief by protecting it from friction. The cannabis indica acts as an anodyne, and the acid reduces and loosens the corn, so that it comes off in four or five days, adhering to the collodion. The remedy is applied with a camel's hair pencil, and if the corn is not well cured, the application may be repeated. In four or five days the patient should use a warm foot-bath and rub off the collodion. If any portion of the corn remains the acid should be applied again, and the treatment continued until the whole of the corn has disappeared. The skin will be soft and smooth, as in the healthy state.

The mixture dries immediately, and does not prevent for a moment the use of the stocking.

I have used salicylic acid in the treatment of bunions with like good results.

Collodion as found in the shops makes a good mixture, but I have found Dr. Edward R. Squibb's flexible collodion preferable, as it makes, with the other ingredients of the remedy, a denser fluid. The extract of cannabis should be the solid extract.

I have written this communication because I thought the slight notice of the remedy in the REPORTER did not attract the attention of its readers. I am sure no remedy has ever been proposed which is so useful in those painful affections of the feet as salicylic acid. There are many diseases of the human body which seem to be trifling and do not receive that attention which is due from physicians and surgeons, though exceedingly annoying to their patients. I have been the recipient of the gratitude of many patients for the relief from suffering which this remedy has given them.

Let us do all we can to cure them. Mr. Gezou's formula, as given in the REPORTER is:—

℞.	Salicylic acid,	30 parts or grs. xxx
	Ext. cannabis indica,	5 parts or grs. v
	Collodion,	240 parts or ℥ ss.

Easton, Pa. TRAILL GREEN, M.D.

NEWS AND MISCELLANY.

Massachusetts State Medical Society.

The one hundred and first annual meeting of the Massachusetts State Medical Society was in session in Boston, June 13th and 14th, 1882.

TUESDAY, JUNE 13.

The first paper, on "Cottage Hospitals," was read by Dr. L. W. Baker, of Baldwinsville. Small, detached, one-story buildings are more favorable, hygienically, for the treatment of patients than are the large, many-storied city hospitals. During the past twenty years the cottage hospitals of England have annually relieved some 50,000 patients. In that country it has been found that cheap wooden buildings provide the best accommodations for the sick. A cottage hospital, with capacity for at least twenty-five beds for children, can be erected, including land, for $5000.

Dr. J. W. Hannum, of Ludlow, followed with a paper on "Disease Germs," which was a review of the most recent discoveries in this branch of pathology.

Dr. Walter Ella then read a paper on the *Coincidence of Anal Fistula and Phthisis.* About twenty per cent. of patients suffering from fistula in ano are phthisical. The following are the reasons why, in his opinion, the phthisical have anal fistula so often: 1. Because of tubercular deposit in the rectal walls near the anus, with subsequent ulceration and fistula. 2. The retention in Morgagni's pockets of tuberculous diarrhœal discharges, subsequent inflammation, burrowing and fistula. 3. Inflammation starting in some of the numerous submucous rectal glands, which are prone, in tuberculous patients, to become inflamed, and abscess follow.

A paper on *Some Obscure Mental Symptoms of Disease* was then read by Dr. Charles F. Folsom.

AFTERNOON SESSION.

The question of the admission of women was brought up at this session, and again in the evening, at the Councillor's meeting, when it was indefinitely postponed.

WEDNESDAY, JUNE 14.

Dr. J. H. Robbins, of Hingham, presented a paper on *American Dyspepsia.* He believes that the great prevalence of dyspepsia in this country is the result of neurosal causes. He then went on to recite the various nervous conditions, such as worry, fright, anxiety, etc., that are known to produce dyspepsia.

A Study of the Action of Iron was the title of a paper read by Dr. C. H. Williams, of Boston. The results of experiments on animals inclines him to the belief that we have in iron, though not a dangerous element, yet a drug of more toxic qualities than is generally imagined. Iron should be given on a full stomach. The good following its use would seem to be due rather to its action in promoting digestion and assimilation than to the increase in the number of blood corpuscles, which is probably a result of the improved nutrition.

Dr. W. W. Gannett, of Boston, read the concluding paper of the session, and took for his subject *The Relation of Mould Fungi to Disease.*

The annual discourse was delivered by Dr. James P. Lynde, of Athol, on *Infantile Mortality; Its Causes and Prevention.* A vote of thanks was tendered Dr. Lynde.

OFFICERS FOR THE ENSUING YEAR.

President.—Alfred Hosmer, M.D., of Watertown.

Vice President.—J. H. Mackie, M.D., of New Bedford.

Treasurer.—Frank M. Draper, M.D., of Boston.

Corresponding Secretary.—C. W. Swan, M.D., of Boston.

Recording Secretary.—F. W. Goss, M.D., of Roxbury.

Librarian.—David H. Hayden, M.D., of Boston.

Orator for Anniversary in 1883.—Amos H. Johnson, M.D., of Salem.

Anniversary Chairman.—Francis H. Brown, M.D., of Boston.

The President introduced to the Society the President-elect, Dr. Alfred Hosmer, of Watertown.

The Society then adjourned to the Music Hall, where more than seven hundred Fellows dined and listened to after-dinner speeches.

The next annual meeting will he held in Boston, on the second Wednesday in June, 1883.

A Singular Case.

The Paris medical men, especially specialists in nervous diseases, are much interested, if not puzzled, by a patient recently received at the Beaujon Hospital. She was found by two policemen, insensible, on a seat in the Champs Elysées. At the station-house, Dr. Pinel was unable to restore her to consciousness, though he used every known means. She was in a state of ecstacy, her eyes wide open, and a smile on her lips. She remains mute; eats but little, and seldom. She is far advanced in pregnancy.

White Lead Factories.

We learn that the Gateshead (England) guardians have had their attention called to the condition of the employés of the white lead factories of the neighborhood. Decrepitude, palsy, blindness, and even death resulting from the lead poisoning. They will take steps to secure the introduction of machinery for the most injurious parts of the work. This is an example worthy of imitation in our own country.

Items.

—Sir Erasmus Wilson is improving very much in health.

—A Medical Students' Club has been organized in London.

—The next meeting of the Obstetrical Society of Philadelphia will be held September 7th.

—The meeting of the British Medical Association this month will celebrate the fiftieth anniversary of its foundation.

—Dr. J. S. Billings has accepted the invitation to deliver the annual oration before the Medical and Surgical Faculty of Maryland in April, 1883.

—Mr. Thomas Griffith, of St. Helena, Lancashire, England, who had been in practice there for twenty-one years, and who had been in the habit of taking chloral for the purpose of inducing sleep, accidentally took a larger dose than usual, with a fatal result.

—The eminent surgeon, Baron von Langenbeck, has tendered his resignation of the Professorship of Surgery in the University of Berlin, which he has held for many years with advantage to surgical science and honor to himself. His resignation has been accepted by the Prussian Government; and instructions have been given to take the necessary steps for the appointment of a successor, to enter upon the duties of the chair in October.

—A "Philanthropic Corps" has just been established by Herr von Madai, the President of the Berlin Police, composed of police officers and constables, a certain number of whom are chosen from the different police divisions. These members of the force are to attend weekly lectures at the Town Hall, on the treatment of invalids and sick persons suffering from sudden illness or accidents. It is expected that, shortly, about three hundred constables will, by these means, obtain sufficient knowledge of medical science to treat sufferers before regular medical aid can be procured. Attention will especially be directed to the best means of restoring life to persons taken from the water.

OBITUARY NOTICES.

Dr. William H. Studley, of New York, died of pneumonia, in that city, June 12th, ult. He was born in Bridgeport, Conn., February 21, 1827, graduated at Trinity College, Hartford, in 1850, studied in the Protestant Episcopal Divinity School there, was ordained by Bishop Brownell, but after two years' service in different parishes, owing to feeble health, determined upon a medical career. After a partial course at the Rush Medical College, Chicago, he received his degree from the College of Physicians and Surgeons, N. Y., in 1860. He was chiefly known as a contributor to some of the journals devoted to gynecology, and also as an inventor of some instruments of value. As a writer he was trenchant, lucid and original. As a debater he was always interesting.

QUERIES AND REPLIES.

J. W. C., in our issue of June 17th, is answered by a correspondent as follows: Give from five to eight drops of the tinct. iodine comp. in a wineglassful of water, three times daily, immediately after meals, uninterruptedly, during four weeks.

E. W. McG., Canada.—You can buy the articles you desire of any first-class drug store.

MARRIAGES

HARRIS—HURD.—In Fayetteville, N. Y., June 15th, 1882, by Rev. John C. Hill, Dr. Ira Harris, and Miss Ara, only daughter of the late D. E. Hurd, M. D.

WALLACE—ADAMS.—On Wednesday, May 3d, 1882, by Rev. H. J. Turner, at the residence of W. T. Chapman, H. C. Wallace, M.D. and Miss Mary A. Adams, all of Randolph, Tenn.